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THE PROPOSED ENLARGED NATIONAL PUBLIC HEALTH ORGANIZATION

A DISCUSSION OF PLANS FOR ITS ORGANIZATION

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A careful reading of the hearings before both the Senate and the House committees, which have been considering the Owen and other bills, designed to coordinate and increase the public health activities of the general government, compels the conclusion that the committees obtained very little that would be of value in solving the problem before them. That problem may be stated to be the drafting of a law which will give adequate recognition to the importance of national public health work, and at the same time will avoid being made the instrument for exploiting the theories of a great variety of well meaning people whose preference for some particular plan of organization, or enthusiasm for some particular form of research or educational propoganda, is in inverse proportion to their knowledge of the limitations of national health legislation on both the practical and the constitutional sides.

NATURE OF PROBLEM

Broadly speaking, the problem involves two questions: (1) What relation shall the public health organization bear to the other executive organizations of the government? and, (2) How shall the organization be constituted in order to give it at once the greatest practical efficiency within the limits of that relation?

What practical assistance, then, did the committees get from the voluminous testimony presented to them? Let us analyze it and see.

ANALYSIS OF THE HEARINGS

The witnesses fell naturally into two classes, those advocating legislation along the lines of one or more of the pending measures, and those opposed totally or in part to the principle underlying those measures. The second class can be quickly disposed of because, their efforts being directed toward preventing action along the general lines followed by most of the pending bills, their ideas could not be of much use in shaping legislation in furtherance of the object of those measures.

An exception to these must, however, be made in regard to several of the purely legal points raised by Ex-Governor Bates as attorney for certain organizations opposing legislation, for while most of these points were more adroitly than convincingly presented, there were some others which raised questions which, it must be admitted, had apparently never occurred to many of the proponents of the measures under consideration.

Passing to a consideration of the statements of the proponents, they are readily classifiable into several pretty definite categories. First in point of numbers, those whose statements were largely confined to a presentation of the great importance of expanding the scope of the national public health activities, to an enumeration of the problems for the elucidation of which only national agencies seemed adequate, and to explanations of the enormous advantages, racial, social, educational, economic and sanitary, which would follow the solution of those problems. Some of these witnesses had incidentally something to say about the specific measures under discussion, but for the most part their statements contained nothing that would either inform the committee as to what the government was already doing, what it should do, or how it should do it.

The second class comprised those whose arguments were directed to supporting the fundamental proposition that the proposed increase in governmental activities required the establishment of a new executive department, and, in so far as their arguments may be accepted as valid by the members of the committee, their testimony can be regarded as helpful.

The third class comprised those whose testimony concerned the desirability of transferring to the new organization certain specific activities at present located in existing organizations of the government, and while the witnesses concerned had very little if anything to say definitely as to the extent to which these activities were to be transferred, or the manner in which they were to be correlated with other activities in the organization of either existing or new public health agencies, still, so far as it went, this testimony can be considered as helpful, but like that of the other groups, it did not go far in the direction of constructive suggestions. There were two exceptions to this. Before the Senate committee Dr. Kober and Dr. Wiley did present constructive suggestions as to the activities to be transferred to the new organization, and explanations of reasons for such transfers.

Disregarding the statements of the first class of the proponent witnesses as not of immediate constructive utility, what does all the rest of it yield? First, arguments as to what kind of a head the new organization shall have, arguments which go very superficially into only one of several of the suggestions offered as to his rank, and the method of his selection; second, fragmentary discussion of what agencies shall be under him—nowhere any presentation either of the broad general questions involved in designing the proposed organization, or the systematic study of the details necessary to make that organization effective.

This is in no sense intended as a criticism of the motives or ability of the witnesses. It simply points out the inherent difficulties in properly presenting such questions to a large committee by means of testimony of witnesses, whose very eminence in various lines of human endeavor, while it explains their being put forward as specialists as to certain phases of the subject, causes them to take a rather narrow view of it and necessarily produces a somewhat fragmentary and inconclusive mass of testimony.

Now it appears to me that, aside from the question of who shall be at the head of any organization, the real matters to be considered are what in general terms are the kind of activities that may be properly included in a national health organization at the present time, how far they already exist in one place or another, and how far they must be created *de novo*.

I have kept pretty closely in touch with the discussions of these matters during a good many years, and think it is safe to say that there has been more said about what kind of a head the public health agency should have than about the organization of the agency itself.

PLAN OF DISCUSSION

Deferring for the present the consideration of that matter, I desire to present the question of the organization. I wish first, however, to make it plain that I do not intend to present the matter from the point of view of any particular organization, sect or clique, either official or unofficial. I propose merely to outline a tentative enumeration of the *kind* of activities that might be embraced in the national health organization, to take them up seriatim and set forth to what extent they exist, how far existing agencies are capable of development, to what extent their transfer from their present location would be possible or desirable, and what new agencies would have to be created. I then propose to present the only two possible plans for the organization of the various activities into a practical administrative machine, and lastly, to discuss what sort of a head the whole organization should have.

I am aware, as already stated, that this is reversing the plan followed in most of the discussions of the subject, but I believe it is logically sounder to settle the question of the apex after the dimensions and character of the subjacent pyramid have been settled than to determine the character of the apex and then construct the pyramid to fit it.

Just here it may not be amiss to point out the chief difficulty that has confronted most of those who have undertaken to make detailed plans for a department or bureau of public health, and that is that very few of them have been familiar with the legal aspects of the case, of precedent, existing or former laws, the opinions of the comptroller or the decisions of the courts. Neither, as a rule, have they been familiar with governmental matters. In effect they have undertaken to make plans for an edifice without being familiar with either the inherent structural qualities of some of their materials, or the provisions of the building code under which they must be combined. I do not claim to be exempt from these difficulties myself, but twenty-two years close contact with many of them has given me a fair degree of familiarity with the subject, and I have therefore in the preparation of my plan avoided such difficulties, as far as I could, and endeavored to indicate what they were when I could not avoid them.

In the outline presented in the accompanying diagram I have embodied more or less the suggestions offered by various people at various times as to what should be represented in the new organization, notably those of Dr. Kober and Dr. Wiley before the Senate committee, but the arrangement is my own, the result of many years of practical experience with the advantages and defects of the existing public health agencies of the government.

REASONS FOR TWO GRAND DIVISIONS

In the accompanying diagram it will be noticed that there are two grand divisions—scientific and administrative. There are three reasons for making these two grand divisions.

First.—There are grave constitutional questions involved in administrative action by the government, in many public health matters, questions involving the "police power" and the like, which do not apply to the making of purely scientific investigations and the publication of the results. The latter may be clearly justified as necessary for the information of the government in order that it may intelligently regulate the sanitary aspects of interstate and foreign commerce, or for intelligent regulation of its own governmental agencies, or of areas under its jurisdiction. In organization, therefore, the two sides should be kept distinct in order that legislative action designed to promote the research side be not restricted by the necessity of avoiding constitutional restrictions on administrative encroachment on the powers reserved to the states.

Second.—This arrangement will facilitate the coordination of the commissioned organization of the Public Health and Marine-Hospital Service with the activities to be enlarged, transferred or created. Every impartial student of the subject knows that this service will be the largest single component of any new health organization, and the question has been how to retain the advantages afforded by the coherent, compact and disciplined administrative efficiency of that service, and at the same time secure the necessary flexibility of organization to provide for the utilization of a personnel drawn from a variety of other sources, especially in connection with research work. I do not for a minute mean that the personnel of the Public Health and Marine-Hospital Service shall be confined to the administrative side, or that the personnel drawn from other sources shall be confined to the research side; neither am I trying to champion the Public Health and Marine-Hospital Service under the pretense of an impartial discussion of the subject of the new organization. I only want to point out one of the advantages in keeping the natural grand divisions clearly in view when making legislative provision for the new organization.

Third.—The division follows the customary lines of governmental organization and will therefore promote efficiency.

EXPLANATION OF DIAGRAM

A. SCIENTIFIC SIDE. (First Grand Division.)

I. Bureau (or Division) of Statistics and Reports.

(a) *Compilations.*

The compilation and publication of the mortality statistics of this country is now done by the Division of Vital Statistics of the Census Bureau, Department of the Interior. The current morbidity and mortality statistics concerning the so-called quarantinable diseases, cholera, plague, typhus fever, smallpox and yellow fever, of both this and foreign countries are

HEAD

A. SCIENTIFIC

I. Bureau (or Division) of Statistics and Reports.
(a) Compilation.
(1) Morbidity.
(2) Births.
(3) Deaths.
(b) Publications.
(c) Library of Medicine and Surgery.
(d) Climatology.
(e) Advice to State and Local Authorities.

II. Bureau (or Division) of Sanitary Research.
(a) Laboratory Investigation.
(1) Bacteriology and Pathology.
(2) Pathology.
(3) Parasitology.
(4) Physiology.
(5) Biology—to include the control of vaccine and antitoxin production.
(6) Chemistry.
(7) Pharmacology.
(b) Field Investigation.
(1) Epidemiology.
(2) Housing and Social Conditions.
(3) Workshops, Mines and Industrial Conditions.
(4) Study of the Disposal of Wastes.
(c) School of Applied Hygiene.
(1) For Service Officers.
(2) For State and Municipal Officers.

I. Bureau (or Division) of Personnel and Accounts.
(a) Mails, Files, etc.
(b) Personnel.
(c) Accounts.

II. Bureau (or Division) of Quarantine and Immigration.
(a) Quarantine.
(1) Domestic.
(2) Foreign and Insular.
(b) Immigration.
(c) International Sanitary Relations.
(d) Management of Epidemics.
(e) Philippines and Isthmus.

B. ADMINISTRATIVE

III. Bureau (or Division) of Government Hospitals.
(a) U. S. Marine Hospitals.
(1) Marine Hospitals and Dispensaries.
(2) Medical Officers for Revenue Cutters.
(3) Physical Examination for Enlistment, Revenue Cutter Service.
(4) Examination of Sight and Hearing of Pilots and Masters.
(5) Physical Examination for Saving Service.
(6) Service to be rendered in time of war.
(b) U. S. Hospitals and Baths, Hot Springs, Ark.
(c) Medical Service, U. S. Soldier's Homes.
(d) Hospitals for Immigrants.
(e) Government Hospital for Insane.

IV. Bureau (or Division) of Applied Sanitation and Sanitary Engineering.
(a) Interstate Sanitation.
(1) Water Courses.
(2) Railways.
(3) Shipping.
(b) Public Buildings.
(c) Assistance to State and Local Authorities.

compiled and published weekly by the Division of Statistics and Reports of the Public Health and Marine-Hospital Service, Treasury Department. The statistics of other infectious diseases, as tuberculosis, measles, typhoid and scarlet fever and diphtheria, are also collected from those states or municipalities which will supply them, and published weekly by the Public Health and Marine-Hospital Service, Treasury Department, together with the tabulated mortality reports of some ninety principal foreign cities, and untabulated mortality reports from a considerable additional number of foreign cities and countries.

Vital statistics are the foundation of scientific public health work, and they are equally essential for the analysis of census returns. On the other hand, international statistics are not properly a part of the census, and both the Census Office and the Public Health and Marine-Hospital Service rely on states and municipalities for their information, but of course the machinery of the Bureau of Vital Statistics is much more complete than that of the other service and its personnel is better trained in the interpretation of statistics on their social and economic sides, and to a lesser extent on their sanitary side. The question may therefore be stated thus: The census work would not be complete without the collection of vital statistics; scientific public health work cannot begin without access to compilation of vital statistics.

Fortunately figures are not like the fruit of scientific research. They can be collected by one agency and interpreted by another in so far as they apply to its own work. Whether then the Division of Vital Statistics should be transferred to the health organization, or whether it shall supply the latter with the results of its work, the mutual division of the publication to be determined by regulations, is not a very essential matter.

(b) *Publications.*

The existing publications of direct public health interest are the bulletins of the Hygienic Laboratory, the Public Health series of pamphlets, the Weekly Public Health Reports, and the Surgeon General's Annual Report, all issued by the Public Health and Marine-Hospital Service of the Treasury Department; some of the bulletins of the Bureau of Chemistry, Bureau of Animal Industry, Bureau of Plant Industry, and the nutrition investigations of the Experiment Stations, all of the Agricultural Department, and a few of the publications of the Department of Commerce and Labor—especially of the Bureau of Immigration.

One of the greatest fields of usefulness open to a national health agency is in the direction of publishing the results of its various investigations and activities by means of bulletins, reports, lectures, and the like. The enormous good done by the Department of Agriculture along these lines is well known. There may be legal objections to going into a state to do intrastate work, even for interstate purposes, but there can be no objection to the communication to state and local authorities by the government of the results of its own investigations. In so far as it may be deemed wise to transfer, in whole or in part, any of the activities of the last two named departments, of which I will speak later, their publications would logically simply go to swell the number, bulk and value of the first three publications, the research reports falling to the share of the laboratory bulletins, those of the other investigations to the public health series, and the statistical and other matters of immediate interest for national, state and municipal sanitarians to the weekly *Public Health*

Reports. The skeleton of the agency for publications may thus be said to exist already.

(c) *Library of Medicine and Surgery.*

This—known as the Surgeon General's Library—is now in the War Department, but its work has no inherent or essential connection with the work of the Army Medical Corps which now supplies the officers who have charge of its work. It is the great medical library of the country and should logically go into a national public health organization.

(d) *Climatology.*

This is of important public health interest but as the meterologic data on which it rests are compiled by the Weather Bureau in the Department of Agriculture, it would seem expedient that the collection of the data be left as it is, their interpretation only becoming a duty of the national public health organization.

(e) *Advice to State and Local Authorities.*

As this will be principally by means of publications, and correspondence in explanation and amplification of them, the work should belong to the Scientific Division.

II. Bureau (or Division) of Sanitary Research.

(a) *Laboratory Investigations.*

(1) BACTERIOLOGY AND (2) PATHOLOGY.

The bacteriology and pathology of public health interest is now done principally by the Division of Bacteriology and Pathology of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, and the Bureau of Animal Industry of the Agricultural Department.

(3) PARASITOLOGY (to include entomology).

The work on these subjects of most importance from a public health point of view is now done by the Division of Zoology of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, by the Division of Entomology, to some extent by the Bureau of Animal Industry, and to a less extent by the Bureau of Plant Industry, all of the Agricultural Department.

(4) PHYSIOLOGY.

There is no agency of the government now confined solely to the study of human physiology. Incidentally to the other work it is studied by some of the divisions of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, the Food and Drug Laboratory of the Division of Chemistry, Agricultural Department, and by the Nutrition Experiments and Pharmacologic Laboratory of the same department.

(5.) BIOLOGY (to include control of vaccine and antitoxin production and nutrition experiments).

This also is studied incidentally as a part of the work of the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, the Bureau of Animal Industry, the Division of Entomology, Bureau of Plant Industry and Nutrition Experiments of the Agricultural Department. The nutrition work only in the latter, and the control of vaccine and antitoxin (by statute) only in the Hygienic Laboratory.

(6) CHEMISTRY.

General chemistry, organic and inorganic, purely as such, is now studied by express statutory direction in the Division of Chemistry, Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, and in the Division of Pharmacology of the same. Chemistry as incidental to food and drug work, in the Division of Chemistry, also incidentally by the Bureau of Plant Industry, and to some extent in other divisions of the Agricultural Department; also in the Laboratory of the Bureau of Standards.

(7) PHARMACOLOGY.

In the Division of Pharmacology, Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department; in the pharmacological laboratories of the bureaus of Chemistry, Animal Industry and Plants Industry of the Department of Agriculture.

The agencies engaged on these branches (laboratory investigations) are so interrelated that the whole matter can best be discussed under one heading. It seems clear that in so far as any of the activities of the bureaus, divisions and laboratories mentioned can be disassociated from the work essential to the performance by the departments containing them of their own particular duties, they should be in a public health organization. In this category are all the divisions of the Hygienic Laboratory, Public Health and Marine-Hospital Service, Treasury Department, the nutrition experiments and the pharmacologic laboratories of the Bureaus of Plant Industry, Animal Industry and Chemistry of the Agricultural Department, and probably the Purification of Water Laboratory of the Bureau of Plant Industry. The Bureau of Entomology may be in this class but probably its major work is too intimately connected with the Agricultural Department to permit of its transfer.

DIFFICULTIES IN ARRANGING TRANSFER OF SOME OF THE LABORATORY INVESTIGATIONS

When we come to the chemical, biologic, pathologic, physiologic and bacteriologic work of the Agricultural Department bureaus and divisions the subject is most difficult. Much of the work done in these lines by these bureaus and divisions is merely incidental to their real function, and yet is inseparable from it, just as the production of by-products in a manufacturing plant may be of little moment to the business as a whole, and still the business cannot be conducted without developing them. Professor Wiley says that some of the "activities" could be transferred, but does not go into detail. The plain fact is that the problem is one that no congressional committee, or no one person outside of the committeee, whether lay or medical, is competent to solve. The reason for this is that the question is neither a wholly legal one nor a wholly scientific one. In a sense it is one of "departmental engineering;" one of deciding just which cogs, wheels and pinions of the department machine can be removed without impairing the efficiency of the machinery or necessitating an expenditure, immediate or future, as great as the saving sought to be secured by the transfer of the parts to some other machine. For the present, however, it may be said that the main controversy rages around the question of what shall be the home of the "pure food" work and the inspection work of the Bureau of Animal Industry of the Agricultural Department, and the nub of the whole matter is whether these activities are "commercial" or "public health" matters. If the so-called "pure food" law is, as one of the most eminent sanitarians in the United States, the late Professor Harrington, has said it was, merely an act to prevent fraud and misbranding, conferring protection to public health as an incident to its execution and not as the object of its enactment, then it belongs where it is; but if it be a public health matter, either primarily or because of the resulting advantages of its enforcement, it should be in the public health organization. The same is true of the activities of the Bureau of

Animal Industry of the Department of Agriculture. One or more witnesses advance the idea that while the inspection, shipping, etc., of live animals was a "commerce" matter and as such should be under the Department of Agriculture, that the slaughtering and post-mortem inspections should be under the public health organization; in other words, that a live steer is an object of commerce, but that a dead one is not. The work of the Bureau of Animal Industry is of incalculable importance to public health, but so it is to the purely agricultural and commercial interests. How shall the dispute be decided? I think there is a way to settle these questions, but it should be properly taken up when we come to the question of legislation.

(b) *Field Investigations.*

(1) EPIDEMIOLOGY.

The work done on this subject is practically confined to certain field investigations made in this country by the Hygienic Laboratory of the Public Health and Marine-Hospital Service, Treasury Department, under the direction of the Division of Sanitary Research of that Service, and in the Philippines by the Director of Health of the Insular Government, who is detailed from the Public Health and Marine-Hospital Service, and by the Army Medical Corps as incidental to their duty in the islands.

The general verdict being that the army work must be kept out of the national public health organization, all that would be necessary for the development of this branch of work would be to extend the scope of the authority, at present much restricted, under which the work is now done.

(2) HOUSING AND SOCIAL CONDITIONS.

(3) WORKSHOP, MINES AND INDUSTRIAL CONDITIONS.

There is considerable work done at present in the direction of investigating the conditions enumerated but it is incidental to the work of several bureaus and divisions of the Department of Commerce and Labor rather than by explicit statutory direction. The Bureau of Mines, Department of the Interior, has been recently created by statute, but it is not known at this time, what, if anything, will be done in the nature of sanitary investigation.

There was more or less said at the hearings, and a great deal has been written, about the necessity of putting this work under the jurisdiction of the national public health organization, and I have therefore included the titles among the activities enumerated as proper to that organization, but as I cannot see how administrative work along those lines can be legally done, I have placed the items under the group of subjects which the government may investigate for its own purpose, the results being then available for general information. If the work be done it must be done either by machinery created *de novo* for that purpose in the public health organization by transferring the activities now in the Department of Commerce and Labor to the health organization, or by the Department of Commerce and Labor as at present. The last plan would be the easiest, the second the most difficult, and the first would give the best results, though of course it would produce some duplication of work.

(4) STUDY OF THE DISPOSAL OF SEWAGE AND WASTES.

Some work has been done along this line by the Division of Sanitary Research, Public Health and Marine-Hospital Service, Treasury Department, directly, and some indirectly by officers serving on boards such as the Lake Michigan Water Commission; some by the Purification of Water Laboratory and the Bureau of Plant Industry, Agricultural Department, and very extensive sanitary surveys have been made by the Geological Survey.

It would seem that the Purification of Water Laboratory should come into the public health agency and that means be provided for continuing the present work of the Division of Sanitary Research as above.

LEGAL WARRANT FOR THE STUDY OF THE DISPOSAL OF WASTES

The relations of this subject to the preservation of the navigability of streams, to the preservation of fisheries in waters under the jurisdiction of the general government and to the health of those engaged in interstate water-borne commerce, are so important that it is clearly one of the things about which there would seem no ground for objection from those who question the legality of some of the other work proposed by the advocates of an enlarged public health organization.

(c) *School of Applied Hygiene.*

(1) FOR INSTRUCTION OF THE PERSONNEL OF THE PUBLIC HEALTH ORGANIZATION.

(2) FOR THE INSTRUCTION OF STATE AND MUNICIPAL HEALTH OFFICERS.

The Public Health and Marine-Hospital Service, Treasury Department, now sends its officers to the Hygienic Laboratory under its own jurisdiction and admits representatives of state boards of health to take this laboratory course.

This has been the practice for a long time and the results have been good, but very limited. The most vital need in a public health way in this country is a supply of men trained for the work of local, county and state health officers. State and preventive medicine is a profession in itself and we can only advance in local health administration as we give appropriate recognition to that fact. If we had local health officers in the villages and rural districts of this country comparable to those they have in England, for instance, the public health problems would be on the road to solution, and there would be little for a national public health organization to do except to make scientific investigations and act as a sort of clearing house for the state boards, but it will be many, many years before that time comes, if it can ever come under our system of government, and in the meantime the interests of the country can be served in no better way than by providing the means by which the state, county, town and village health officers can be instructed in the technical side of their duties. Every man so trained will become a focus of active sanitary improvement within a certain area, and directly as these areas increase in size and number will those conditions disappear whose existence has been the basic cause of most of the agitation for the performance by the general government of many things that should be done by the states. We have been teaching the farmer how to double the number of bushels of grain he can raise to the acre, and why should we not instruct the farmer's local health officer how to cut in half the number of tombstones in the farmer's graveyard? This would have nothing to do with cults or systems of medicine, or the teaching of medical practice. The work of the health officer stops where the practice of medicine begins. He does not treat the sick, he prevents sickness.

How can the government legally maintain a school of applied hygiene to which the men of the state boards of health can come? For of course there is no dispute as to its right to maintain a school for the instruction of its own officers. It is by the same right that it subsidizes sectarian medical schools in Washington to which all may come, but fortunately there is a more direct precedent as in the case of the army schools at Leavenworth, Fort Riley and Fort Monroe for the instruction of its own officers, to which are admitted such officers of state troops as desire instruction. We already have part of the plant and the skeleton of the organization for this work. Whatever this Congress does in public health legislation it can do no one thing of greater potential good than to provide the means by which this work can grow in scope and efficiency.

B. ADMINISTRATIVE SIDE (SECOND GRAND DIVISION).

I. Bureau (or Division) of Personnel and Accounts.

(*a*) *Mails, Files, etc.*

(*b*) *Personnel.*

(*c*) *Accounts.*

This first division of the administrative side of the national health agency follows the existing plan of the organization in the Bureau of the Public Health and Marine-Hospital Service of the Treasury Department.

It is essential for efficient executive administration that all the work covered by the subheads of this section be administered in one part of the organization. Through this division will pass all the correspondence, and in it will be kept all the records relating to correspondence, and to the personnel composing the various bureaus or divisions of the organization. In it will be handled all the accounts and records pertaining to them, and by it will be transacted all the business which the public health agency will conduct with the other executive departments of the government. All matters relating to personnel, employment, appointments, leaves of absence and the like, will be handled by this division.

This does not mean, of course, that correspondence cannot originate in other bureaus, scientific or administrative; it simply means that all incoming mail will be received and distributed through this division, and all outgoing mail, after being signed by the particular administrative officer charged with the authority to sign for the bureau or division in which the letter originated, will pass out through this Division of Personnel and Accounts after being entered, etc. Without such a division it would be impossible for the executive head of the entire public health service to keep in touch with what had originated, or what had been received by any particular bureau or division of the organization. The organization for this purpose now existing in the Public Health and Marine-Hospital Service of the Treasury Department is capable of being readily expanded to any extent that may be desired.

II. Bureau (or Division) of Quarantine and Immigration.

(*a*) *Quarantine.*

(1) DOMESTIC.

(2) FOREIGN AND INSULAR.

All quarantine functions of the government are now entrusted to the Public Health and Marine-Hospital Service of the Treasury Department, and for the purpose of carrying on the work that service contains two divisions: 1, the Domestic Quarantine, and 2, the Foreign and Insular Quarantine.

This division is purely one of convenience for the administration within the bureau. Under these divisions the service operates all the maritime quarantine stations of the Pacific coast and practically all of the Atlantic coast except that controlling the two great ports of Boston and New York. The law authorizes the government to take over the control of any state quarantine when the authorities of the state in question request it to do so, and provides for the compensation of the state for the plant turned over. In a few instances inspection stations are maintained by cities, although the government may maintain a station covering the navigable water leading to that city. In addition the government, through the Public Health and Marine-Hospital Service, has charge of the maritime quarantine of the Isthmus of Panama, in the Hawaiian Islands, in the Philippines and in Porto Rico, and maintains a considerable number of inspection stations in different parts of the world for the inspection and treatment, disinfection, etc., of vessels bound for the United States. There are forty-four quarantine stations on the coast of the United States operated by the Public Health and Marine-Hospital Service; twenty-seven insular quarantine and inspection stations, and thirty-three inspection stations in foreign ports. In addition to this the Domestic Quarantine Division has charge of all questions which arise in connection with the interstate transmission of disease and the management of epidemics.

(*b*) *Immigration.*

The medical inspection of all immigrants arriving in this country is now made by the medical officers of the Public Health and Marine-Hospital Service of the Treasury Department, who are detailed for that purpose. This is at present done under the immediate control of the Division of Domestic Quarantine as above. The officers detailed for this duty receive their orders from the Public Health and Marine-Hospital Service, and are paid through that service, but out of the funds of the Immigration Service, Department of Commerce and Labor. They report directly to the Division of Domestic Quarantine, Public Health and Marine-Hospital Service, and are subject to the regulations of that service. This system has been in existence twenty years and has been found to be very satisfactory. In addition, at times when the importation of such diseases as cholera, plague, etc., are especially to be feared, officers are stationed at foreign ports, attached to the consulates, for the purpose of inspecting immigrants who are about to embark for the United States, and a similar inspection is maintained at all times at such places as Yokohama, Hong Kong, Amoy and Naples.

(*c*) *International Sanitary Relations.*

At present the government maintains international sanitary relations under the International Sanitary Convention of Paris, of which the United States is one of the ratifying powers, and through the International Bureau of American Republics. The relations with European countries are maintained through the International Bureau of Public Hygiene of Paris, established under Article 181 of the above mentioned convention, in which bureau the United States government is represented by an officer of the Public Health and Marine-Hospital Service delegated for that purpose. The international relations with Mexico and the Central and South American states are maintained by means of international sanitary conventions which have been held from time to time under the auspices of the International Sanitary

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Bureau of American Republics, of which convention the Surgeon General of the Public Health and Marine-Hospital Service of the Treasury Department is the chairman.

At present the international relations are still very largely in a formative state, but the rapid progress being made in the matter will make it necessary very soon that provision be made in the national health organization for a subdivision to handle the questions arising in connection with international relations, and when such a division or subdivision is established it would be logically located in the bureau or Division of Quarantine and Immigration.

(d) *Management of Epidemics.*

As already stated, the management of epidemics is at present in charge of the Division of Domestic Quarantine of the Public Health and Marine-Hospital Service of the Treasury Department, and would be naturally, continued in any enlarged public health organization in that division, as a subdivision of the Bureau of Quarantine and Immigration.

(e) *Philippines and Isthmus.*

As already explained, the maritime quarantine in the Philippines and on the Isthmus is under the direction of the Division of Foreign and Insular Quarantine of the Public Health and Marine-Hospital Service of the Treasury Department, but in addition, there are very important public health functions performed by the same division in connection with the government of the Philippine Islands. The public health work there, as distinct from the maritime quarantine, is under the control of the Insular Government through an officer known as the Director of Public Health. At the present time this position is filled by an officer detailed from the Public Health and Marine-Hospital Service of the Treasury Department who combines with his function of Director of Health under the Insular Government, the position of Chief Quarantine Officer for the Philippines under the Public Health and Marine-Hospital Service of the Treasury Department. This arrangement is at present not a matter of law but is subject to change by the President.

In any new or expanded national public health agency the functions described above under the second heading of the administrative side (Quarantine, Immigration, International, Sanitary Relations, Managements of Epidemics, and Philippines and Isthmus,) would necessarily have to be carried on exactly as at present. As far as I can recall, none of the plans which have been suggested for such a new or expanded organization have suggested the addition of any functions in regard to matters connected with quarantine, immigration, international sanitary relations, management of epidemics, or the Philippines and Isthmus, and as the present arrangement works satisfactorily and is capable of future expansion by presidential regulations, and without the need of special legislation, it does not seem to be necessary to make any suggestions in connection with it.

III. Bureau (or Division) of Governmental Hospitals.

(a) *U. S. Marine Hospitals.*

(1) MARINE HOSPITALS AND DISPENSARIES.

(2) MEDICAL OFFICERS FOR REVENUE CUTTERS.

(3) PHYSICAL EXAMINATION FOR ENLISTMENT, REVENUE CUTTER SERVICE.

(4) EXAMINATION OF SIGHT AND HEARING OF PILOTS AND MASTERS.

(5) PHYSICAL EXAMINATION FOR LIFE SAVING SERVICE.

(6) SERVICE TO BE RENDERED IN TIME OF WAR.

The management of the U. S. Marine Hospitals is now under the charge of the Division of Marine Hospitals and Relief, Public Health and Marine-Hospital Service of the Treasury Department, and this division also has charge of the other five classes of work mentioned above. Through it are provided the medical officers for the Training School of the Revenue Cutter Service and those who serve on the larger seagoing cutters. At the present time about 10 per cent. of the officers of the lower two grades of the Public Health and Marine-Hospital Service are serving at sea under these details. In addition the service makes all the physical examinations for enlistments in the Revenue Cutter Service and provides the medical officer for examining and retiring boards of that service. The examinations as to color sense, acuteness of vision and hearing, which are now prescribed by law for all applicants for license as masters or pilots of vessels, are conducted by this service, as also are the annual physical examinations made for the crews of the Life Saving Service. In the marine hospitals are cared for the sick of the merchant marine, the Revenue Cutter Service, the Life Saving Service, the civilian crews of the vessels of the Quartermaster's and Engineer's Departments of the Army and of naval colliers, officers and crews of the vessels of the Coast and Geodetic Survey and Mississippi River Commission. In addition the hospitals care for foreign seamen on the request and at the expense of the government to which they belong. The law also provides that in time of war the president can make use of the commissioned medical officers of the Public Health and Marine-Hospital Service of the Treasury Department as he may determine, and such officers have rendered services of this character in action during the Spanish War, and in the Philippine Insurrection.

As it is presumed that the functions outlined above will continue to be performed in the same manner under any new or expanded public health organization it does not seem necessary to make any suggestions in connection therewith.

(b) *U. S. Hospital and Baths, Hot Springs, Ark.*

The present situation at the Hot Springs of Arkansas is that the United States Hospital there is maintained for the treatment of officers and men of the Army and Navy, and the officers of the Public Health and Marine-Hospital Service, and is under the control of the War Department. Some of the bills now pending propose to transfer the conduct of this hospital to the new or expanded public health organization, and if such action be taken, the management of the institution would logically come under the bureau or division charged with the operation of similar government institutions. I have therefore placed it under this heading.

(c) *Medical Service, U. S. Soldiers' Homes.*

At present the medical service at the Soldiers' Homes is under the control of the Department of the Interior, but if transferred to the control of the new or expanded public health agency would naturally come under the jurisdiction of the bureau or division under which I have placed it.

(d) *Hospitals for Immigrants.*

At present the hospitals for immigrants are under the control of the Bureau of Immigration, Department of Commerce and Labor, but the medical officers are detailed from the Public Health and Marine-Hospital Service of the Treasury Department, so that they too, if transferred as suggested in some of the bills, would be placed under the bureau or division which we are considering.

(d) *Government Hospital for the Insane.*

The management of the Government Hospital for the Insane is at present vested in the Board of Trustees and is under the direct control of Congress.

Whether or not the various institutions enumerated under the last four subheads (*b*, *c*, *d*, and *e*) should be transferred to the control of the national public health organization is a grave question. The Government Hospital for the Insane is practically the local insane institution for the District of Columbia, although it also cares for the insane of the Army and Navy, and the beneficiaries of the Public Health and Marine-Hospital Service. I am unable to express an opinion as to whether it would be best to leave matters as they are, or transfer this institution to the public health organization. The same is true in regard to the Hot Springs Hospital and the soldiers homes. I think, however, that as the medical inspection and treatment of immigrants is now done by the Public Health and Marine-Hospital Service it would be logical to transfer the management of the hospitals themselves to that service, or rather to the national public health organization of which the Public Health and Marine-Hospital Service will be a part. The present arrangement, it is true, works fairly well, but it certainly would seem desirable that the general management of a hospital should be under the same jurisdiction as that which supplies the medical service.

IV. Bureau (or Division) of Applied Sanitation and Sanitary Engineering.

(*a*) *Interstate Sanitation.*

(1) WATER COURSES.

Except for the extensive surveys made by the Geological Survey the only work done in this connection at the present time is indirect, as detailing officers of the Public Health and Marine-Hospital Service, Treasury Department, for service on bodies such as the Lake Michigan Water Commission, or incidental to investigations by the same organization of typhoid outbreaks, or by the Hygienic Laboratory of the same service as in the Sanitary Survey of the Potomac Watershed, and in daily bacteriologic examinations for the Washington filtration plant.

(2) RAILWAYS.

Except in connection with the management of epidemics by the Division of Domestic Quarantine, Public Health and Marine-Hospital Service, Treasury Department, the government exercises no control over the sanitation of railways.

(3) SHIPPING.

In times of threatened invasion by such diseases as cholera the Division of Foreign Quarantine, Public Health and Marine-Hospital Service, Treasury Department, has charge of the sanitary conditions of vessels sailing from foreign ports for this country, and in times of epidemics the Division of Domestic Quarantine of the same service, assumes charge of interstate shipping. The general control of regulating the sanitary conditions on vessels, air, space, ventilation, food and water supply, character and amount of medical attendance, medical supplies, etc., is under the charge of the Bureau of Navigation of the Department of Commerce and Labor.

How far the government may go in the direction of controlling the sanitary conditions in navigable interstate lakes and streams is a legal question. Under the notes in connection with the subheading "Disposal of Wastes" I have pointed out several reasons which seem to me to justify the opinion that contamination of navigable waters is a proper matter for government regulation, and it is not necessary to repeat them here. Certainly it does not seem reasonable that on the Great Lakes, for example, the general government should prevent the states which draw their drinking water from the lakes from exercising any control over the contamination of those waters by shipping, and yet be powerless itself to take steps for the prevention of the contamination. With this in view I have included watercourses as a proper matter to be embraced in the plan for a national public health organization. It must be admitted, however, that in the case of non-navigable interstate waters the matter can hardly be one for regulation by the general government. Fortunately the Constitution, while preventing direct relief by the government in such cases, has provided a way for adjusting the matter by a congressionally sanctioned agreement between the states concerned, and the court decisions in the Georgia-Tennessee copper fumes case have indicated how a state may force another to either cease polluting a mutual water supply or else join in an agreement for the regulation of the matter. As to the right to regulate the sanitary conditions on interstate railways, there does not seem to be any dispute. The Act of 1893 authorizes the Secretary of the Treasury to make rules and regulations necessary "to prevent the introduction of infectious and contagious diseases from one state or territory into another state or territory" but imposes no penalty. It would seem that all that is needed is the rectifying of this omission to give a national public health organization all the law it needs. In the matter of shipping, it seems clear that execution of the portions of the "Passenger Act" which relate to sanitary matters on vessels should be taken out of the jurisidiction of the Bureau of Navigation, Department of Commerce and Labor, and placed under the control of the national public health organization.

(*b*) *Public Buildings.*

There is at present no central agency in charge of the sanitary condition of Public Buildings. The Division of Sanitary Research, Public Health and Marine-Hospital Service, Treasury Department, has done some work in connection with the ventilation of the Capitol, and has investigated by a commission the conditions as to tuberculosis in the buildings of the executive departments in Washington, but the tendency has been for each department, or in the case of the very large buildings, the superintendent or custodian, to look after its own sanitary affairs.

It would seem to be desirable that the national public health organization should have at least advisory control of the sanitary problems which arise in connection with the large public buildings—possibly by means of a system of inspections; possibly by merely providing a method by which the superintendent or custodian could apply to the national public health organization for advice, or expert assistance. I doubt very much if it be expedient at present to try to do more than this. Every executive department will have a natural hesitancy in surrendering any actual control in its own territory, while they might be glad to get advice on occasions. In time the control of the sanitation of government buildings should be placed under the control of the public health organization.

(*c*) *Assistance to State and Local Authorities.*

Assistance in public health matters other than by publications, correspondence or laboratory research has, as far as I am aware, been given very rarely, if ever, by national agencies to the public health authorities of states and municipalities, except by the bureau of Animal Industry, Agricultural Department, and by various divisions of the Public Health and Marine-Hospital Service of the Treasury Department. The former agency had done a great deal of field work in aid of states, as, for example, tuberculin testing of dairy cattle destined for particular states, or in investigating outbreaks of animal diseases for,

or in cooperation with, state authorities, the most extensive work being in connection with Texas cattle-fever. The work of the Public Health and Marine-Hospital Service along these lines has been very extensive in the direction of assuming direct charge of local epidemics, and by taking up, at the request of state or local authorities, the field investigation of some particular condition. The work along the latter lines has been, of late, especially extensive.

OMISSION OF CERTAIN ACTIVITIES

In the outline given for the organization of a new or expanded public health organization I have purposely omitted, for reasons given below, a great many of the things which have been mentioned in the hearings and discussions as properly within the scope of such an organization, and included therein by the terms of some of the pending measures, as: education, child investigation, medical service of Indian reservations, etc.; and some, such as the establishment of biologic standards, the study of venereal prophylaxis, and the like, because putting them in the law is equivalent to directing that some of the divisions of the organization shall study the things they would be created to study, and furthermore those who are to be in charge of the work to be done should be given an opportunity to develop it along the lines which experience may prove to be best fitted to secure a coherent and logical plan of advancement and *pari passu* with the training and development of the necessary personnel. To prescribe too minutely the subjects for investigation and control will immediately result in an uneven and unbalanced development. Education, child study and the like I have omitted because I have tried to keep in view throughout, the fundamental idea that the law creating the new or expanded public health organization should be drawn in such a way as to avoid as far as possible raising the issue of interference with the powers reserved to the states, and so I have tried to keep pretty close to the lines of precedent in public health legislation. It would be most unfortunate to have some important portion of the new law promptly set aside by the courts. When the new organization is once firmly established and functioning it can be cautiously expanded by amendments which, if found unconstitutional, could be dropped without damaging the legal foundations of the main structure.

CONSTRUCTION OF NEW ORGANIZATION

Coming now to the question of how the machinery of the new organization shall be constructed to secure the performance of the duties grouped under the above suggested plan, it would appear that only two plans of organization are possible; to consolidate the activities, whether resulting from transfer or creation, *with* the Public Health and Marine-Hospital Service under some form of departmental or bureau organization, or, to consolidate such transferred or created activities *into* the Public Health and Marine Hospital-Service under either the present form of control or under some new arrangement.

THE QUESTION OF THE HEAD

This brings us to the question of the head. Four plans are possible:

1. A cabinet officer presiding over a new executive department.
2. An assistant secretary reporting to the head of one of the existing departments
3. A Director-General of Public Health, or a Commissioner of Public Health, of permanent or semipermanent tenure of office presiding over an independent organization and with a status similar to that of the former Commissioner of Agriculture, and reporting directly to the President.
4. A permanent, or semi-permanent, director-general or similar official reporting directly to the cabinet minister at the head of one of the existing executive departments.

ADVANTAGES AND DISADVANTAGES OF EACH PLAN

The first plan is the one about which most has been said, and beyond doubt a just appreciation of the magnitude of the interests involved must lead to the conclusion that these interests are worthy of having a department. Unfortunately there seems to be much opposition in administrative and congressional circles to any increase in the number of the executive departments. The possibilities of overcoming this opposition, and the methods by which it might be overcome, are outside of the scope of this paper, so I shall only briefly mention the advantages and disadvantages of this plan. The principal advantages would be that a departmental organization would give a status to its chief that would enormously increase his prestige with Congress, and his influence and authority in dealing with international and interstate questions; that it would considerably simplify some of the questions arising in connection with the transfer from other departments of the larger activities which have been the subjects of discussion, since there would be no questions of precedence to settle, and would enable the department head to deal directly with other department heads in obtaining data resulting from the researches of agencies working in these departments, in securing cooperation in the larger administrative questions, and in facilitating such joint activities—as for instance the immigration inspections. The disadvantage is that the choice of the department head would not improbably be influenced by geographic or political considerations rather than by the qualifications required of a man who would preside over a semi-scientific department.

The second plan, an assistant secretary reporting to the head of one of the existing departments, seems to be open to some very serious objections. The assistant secretary would have to submit questions of policy, legislation or appropriations to the attention of the President and Congress through the intermediary of a department head who might, through lack of either knowledge or sympathy, fail to present them to the President and to Congress in a manner best calculated to secure the ends in view. Whatever department were chosen, the work for the prosecution of which the department in question was created, and for his fitness in administering which the department head had been chosen, would naturally engage most of that chief's attention and lead, unintentionally, perhaps, but still inevitably, to a neglect of the public health interests. If, on the contrary, the department chief took an active interest in the public health work it is exceedingly improbable that he would have the training and knowledge necessary to make the results of his interest and interference advantageous. Moreover, it would involve the possible danger that external interests, political or commercial, would exert pressure on the departmental chief that might be exceedingly disadvantageous to the interests of public health efficiency. Furthermore, it would involve a good deal of lost motion in the machinery of the public health organization by the interposition of an additional

gearing between the machine, as such, and the source of its power in presidential and congressional support.

The third plan seems to be, by all means, the one to be followed, but unfortunately is opposed to congressional policy, which is strongly against creating agencies independent of one of the executive departments. It would avoid all the disadvantages outlined in the discussion of the first and second plans, and would possess some advantages of its own, the chief of which would be that it would promote efficiency by definitely fixing the personal responsibility for it. If the plan of organization is followed by which the transferred and newly created agencies are consolidated *with* the Public Health and Marine-Hospital Service, it would, by the independence and dignity of the position of the director or commissioner, attract a better equipped class of candidates than a subordinate assistant secretaryship of anomalous position, and render it much less likely to be the reward for political services. If, on the other hand, the plan is adopted of consolidating the transferred and newly created agencies *into* the Public Health and Marine-Hospital Service the Surgeon-General of that service will either fill the position of director, or commissioner, himself, *ex-officio*, or will be the executive officer of the organization, serving under the director or commissioner, very much as the Chief of Staff serves under the Secretary of War, and in either case the advantage of long tenure of office for the executive will be added to the advantages above enumerated as inherent to the third plan.

As already stated, I am of the opinion that the third plan suggested is the best at the present time, but it is directly against the pretty general trend of congressional policy and probably would arouse as much, or even more, opposition than the establishment of a new department. For this reason I offer the fourth plan of organization. It would be the easiest from a legislative point of view, since it would be practically an amplification of the existing relations of the Public Health and Marine-Hospital Service with its departmental chief, but with the very important difference that its head would by law report directly to the head of the Department concerned, and not, as often has been the case in the past, to a second or third assistant secretary.

The permanency of tenure would eliminate most of the objections inherent to the plan of having an assistant secretary, but the difficult personal equations in handling the chiefs transferred along with activities under their control in existing departments would remain to be solved, and undoubtedly this form of organization would not satisfy many who are actively engaged in the present agitation for increase in the national public health activities.

SUGGESTIONS AS TO DRAFTING BILL

In conclusion, a few suggestions are offered as to the general plan to be followed in drawing a bill designed to embody in law the plan for such an organization as I have outlined:

First, the law should be as brief as possible, and should be confined to the declaration of certain basic legislative intentions, leaving the details to be arranged by regulations to be promulgated by the President. Such expression of legislative intentions should include: (*a*) Provision for the creation of a department, bureau or service, as may be determined on, with a declaration of the fundamental principles in accordance with which the new department, bureau or service is to be organized; i. e., either for a consolidation of the activities to be transferred or created with, or into, the Public Health and Marine-Hospital Service; (*b*) provision for the head of the new department, bureau or service, whom he shall be, how he shall be appointed, his tenure of office and compensation; (*c*) an enumeration in the fewest possible words of the duties to be performed, as, for instance, "the investigation and management of all matters relating to the public health as now or hereafter authorized by law or by this act"; (*d*) provision for the continuance of the personnel of the various existing agencies affected, for their salaries, allowances, etc., and provision for the personnel of any newly created agencies; (*e*) authorization for the necessary clerks, etc., without stating salaries or numbers; (*f*) continuance in general terms to the various agencies of the special authorities and duties now vested in them by law; (*g*) continuance of the availability of all appropriations, funds, etc.

Second, it should for the present only transfer or consolidate existing or new agencies that are not the subjects of serious dispute on grounds of either expediency or constitutionality. The Pharmacological Laboratories of the Bureau of Chemistry, Animal Industry and Plant Industry, Agricultural Department,[1] and the Library of Medicine and Surgery, War Department, are illustrations of the first class, and the study of the disposal of wastes with reference to their effects on interstate, water borne commerce and the health of those engaged therein, is an illustration of the second class.

Third, in order to provide for the question of existing activities, the expediency of transferring which is the subject of much dispute, as for example, certain parts of the Bureau of Animal Industry, Treasury Department, a provision should be inserted authorizing such transfers within one year by Presidential order and providing for a commission or committee of departmental chiefs, or delegated subordinates, who shall advise the President of their findings after investigating each case referred to them, but whose advice shall not be binding on him. The law creating the Department of Commerce and Labor contains a provision somewhat similar to this, but if in the case under consideration this is thought to savor too much of the delegation of legislative authority, the President might merely report his findings for the approval of Congress. All this sounds reasonably simple but it will involve a careful study of a large number of existing laws and no little legislative ingenuity to secure the results wished without the loss of something desirable.

There is much diversity of opinion as to the expediency of having an advisory board associated in any way with the management of the new agency. It is urged that it would strengthen the hands of the director or commissioner in public estimation if he had the support of a board of distinguished and disinterested advisors of national reputation, and perhaps it would, if he had it; but suppose that for reasons political, professional or personal, the board were not disinterested? On this point I venture to obtrude my personal opinion that no board should be given authority to meddle in any way with the management of the organization as a whole.

One more expression of opinion I desire to make, concerns, in general terms, the character of the activities to be transferred to the new agency. No activity should, for the present, be transferred whose work is of such a

1. See testimony of Dr. Wiley, p. 110, Senate Hearings on S-6049.

nature that its incorporation in a national public health organization will lead at once to the concentration on that agency, its personnel and its work, of the interested attention of powerful commercial and political interests. No matter how great the economic advantages resulting from public health work, nor to what extent it is clothed for constitutional reasons in the garb of commercial justification, the fact remains that its real objects are altruistic and humanitarian, and with these the politics of personal interest will not mix, though they may discolor them.

In conclusion I deem it proper to state that this article is in no sense inspired by Surgeon-General Wyman or to be construed as an expression of his opinions. It has not been submitted to him, nor has he been informed of its contents. It owes its publication simply to a personal desire to provide a basis for a discussion of a question that is of vital interest to the public and fundamental to the health and lives of the people of the United States.

EXTRACAPSULAR FIXATION OF THE MOVABLE KIDNEY *

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The word "extracapsular" is used in the title of this paper to imply fixation of the kidney by a method entirely external to the tunica fibrosa as distinguished from any method that implies either invasion of that tunic or surgical injury to the kidney itself.

The further significance of the term as it is here used may be made clear by a brief description of the essential features of the operative procedure that I have employed for the last several years—indeed, since 1904—for the anchorage of the pathologically movable kidney,[1] as follows:

TECHNIC OF EXTRACAPSULAR NEPHROPEXY

1. The patient is placed in the classical position on the well side with a firm pad, preferably pneumatic, under the same side. The equally classic incision about 1 cm. below the costal margin and about 10 cm. in extent is made obliquely downward and forward. This dissection is carried through the wall by cutting with the exception that, to the extent that may be found practicable in each individual case, the obliquus externus, the obliquus internus and the transversus abdominis muscles are separated and drawn apart by the finger rather than divided by the knife. In this way the capsula adiposa of the kidney is reached.

2. The capsula adiposa is a most important structure in my procedure, and the very first point that I wish to emphasize is that extreme care must be taken to separate it from its relations to the abdominal wall, to the extent that such relations may have survived the displacement. Care must be taken not to separate the capsula adiposa from the tunica fibrosa.

3. The kidney with its capsula adiposa attached to it is then lifted to the surface. In carrying out this manipulation it may be and generally is necessary first to deliver the upper pole of the organ through the operation wound, for reasons that I shall later explain.

4. The next step in the operation consists in wiping away the globular fat, much or little, from the connective tissue stroma of the capsula adiposa. This stroma, likewise important in this procedure, will be found arranged in very distinct and essentially parallel striæ extending obliquely downward and forward from the lower pole of the kidney. The manipulation of wiping the fat from its meshes is best carried out by the use of gauze, care being taken not to separate these striæ from their attachment to the tunica fibrosa.

5. Gauze is now likewise employed to apply vigorous friction to the tunica fibrosa in its upper zone where the capsula adiposa but rarely invests it; but if it does the fat should be wiped away if possible without disturbing the attachments of its basic connective tissue striæ. This friction to the tunica fibrosa should be continued until the upper zone shows small punctate hemorrhages over its entire area.

6. The kidney is now left for a few moments while any remnant of the capsula adiposa that may have been left adherent to the abdominal wall is entirely wiped away with gauze.

7. A nest—*nidus renalis*—free from fat—having thus been secured, the kidney is slipped back as nearly *in situ naturali* as it will go without force.

8. The connective tissue striæ of the capsula adiposa are then divided transversely at a distance of from 1 cm. to 2 cm. from the lower pole of the kidney. The stump thus formed on the renal side is stitched by chromicized catgut to the inner surface of the upper margin of the operation wound while the lower stump is similarly attached to the inner surface of the lower margin of the operation wound.

9. The operation wound itself is then entirely closed by laminated sutures. Drainage, being unnecessary, is, of course, not employed.

In explanation of the various steps that I have described, more particularly those that are peculiar to this procedure, I beg to offer a few observations:

THE CAPSULA ADIPOSA AND ITS CONNECTIVE TISSUE STRIÆ

The connective striæ of the capsula adipsoa, so essential to this procedure, require a few words of explanation, particularly as they, in an aggregate sense, and as an anatomic structure have so far very generally escaped recognition as being of practical importance. In my previous published remarks[2] on this structure—I have come to recognize these striæ as an anatomic element—I stated that when I first noticed it I thought it was adventitious, and probably, of inflammatory origin and that I had used it because it was convenient and seemed to lend itself to unipolar fixation.

It now seems, from a recent somewhat exhaustive research of the literature, that my experience was not singular. Thus Hahn,[3] whose observation extends back to his inauguration of the practice of kidney fixation in 1881, says that "fibers run from the tunica fibrosa in front and behind to the subperitoneal fascia." Newman, of Glasgow observes[4] that "frequently in long-standing cases the fat becomes infiltrated with connective tissue, making it tough and fibrous and when this altered capsule is stitched to the parietes the kidney can be maintained in its position without suturing the organ itself." Carwardine, of Bristol, says:[5] "It is common in cases of wandering kidney to meet with strong fibrous bands some of which require scissors or scalpel for their divi-

* Read in the Section on Surgery of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.
1. Tr. Am. Assn. Obst. and Gynec., 1906, xix, 19.
2. Tr. Am. Assn. Obst. and Gynec., 1905-1906.
3. Deutsch. Ztschr. f. Chir., 1902, lxvii, 354.
4. Glasgow Med. Jour., 1904, Series 4, lxi, 345 and 418.
5. Bristol Med.-Chir. Jour., 1905, xxiii, 24.

sion." Longyear, of Detroit, was the first to describe[6] these striæ as comprising a distinct and significant structure. His subsequent study prompted him to the conclusion that "this framework of the fatty capsule is probably the tissue left in the track of the ovary or testicle in its descent from the Wolffian body high up near the kidney."[7] As the structure thus became recognized as of definite embryonal origin, he called it a "ligament" and as it extended from the lower extremity of the tunica fibrosa of the kidney to the cecum on the right and to the sigmoid on the left he called it the "nephrocolic ligament." In recognition of this valuable contribution others have called it "Longyear's ligament." But whether the structure may with propriety be called a "ligament," in view of the restrictive meaning of that word, may well be open to doubt. At any rate the structures may be designated as nephro-inguinal striæ. In my own practice in forty-two carefully observed cases, they have been uniformly present. In certain cases, not necessarily of fat persons, the fat of this tunic is very abundant while in other cases, not necessarily of thin persons, it is almost absent. In every case, however, the tunic was represented by the striæ. I am persuaded that in cases in which they have seemed to be absent in the hands of other operators they have either not been looked for or have been torn from the tunica fibrosa in the process of enlevement of the kidney.

REMOVAL OF FAT FROM THE RENAL FOSSA

The next step peculiar to this procedure that seems to call for a word of explanation is that of carefully wiping away any mural fat that may be found in the renal fossa. The surface of this fossa is of course the natural bed of the capsula adiposa and the area of its normal implantation. Its attachment to this surface is, however, so much less intimate and so much less firm than that to the tunica fibrosa that it is liable to be entirely broken up by the traction of the displaced organ.

In some instances, however, the fatty capsule seems to separate into two layers, one going with the kidney, the other remaining adherent to the inner surface of the renal fossa. An attempt to make a kidney adhere to a surface thus covered with fat, no matter how the kidney may have been prepared, must obviously either fail from the start or be of short duration. This fact is, in my opinion, and in view of the uniform permanency of results in my cases, an important element in the explanation of the relatively large proportion of failures reported by many operators. Indeed but few operators in recording their technic, insist, as does George Erety Shoemaker,[8] for instance, on the importance of clearing the fat away from the internal surface of the abdominal wall.

DIVISION OF THE NEPHRO-INGUINAL STRIÆ

The striæ of the capsula adiposa are divided and the upper segment is attached above the incision and the lower below it for reasons made plain by Longyear's research, confirmed by my own experience. Thus Longyear has demonstrated that these striæ are in such intimate connection with the cecum on the right and the sigmoid on the left that they may and probably do become the media of traction by the loaded or replaced bowel on the kidneys. He is convinced that this is such an actual condition that it is to be considered a positive etiologic factor in descent of the kidney.

It is therefore of importance to sever the continuity of these media, as Longyear does not do, and thus to intercept the transmission of this force, which might otherwise become effective in redisplacing the kidney. But while the kidney is being thus protected from traction, care must be taken not to deprive either the cecum or the sigmoid of any suspensory power that may inhere in this anatomic arrangement. It is important, therefore, that the lower segment of these striæ shall be attached to the lower margin of the operation wound.

FRICTION OF THE TUNICA FIBROSA

Vigorous friction of the tunica fibrosa above the zone covered by the adherent striæ of the capsula adiposa, especially on the posterior surface of the kidney, and carried to the point of inducing punctate hemorrhages, is practiced for the purpose of provoking an abundant exudate—the glue for the postage stamp—by which when organized the organ through its tunica fibrosa becomes adherent to the abdominal wall.

Some operators endeavor to accentuate this process by treating the tunica fibrosa with some irritant. Thus Carwardine[9] treats the whole surface with strong phenol while others use a mild solution of silver nitrate for the same purpose. In the light of my experience with gauze friction these expedients are unnecessary. While their reported immediate results would seem to indicate that they may complicate rather than simplify the operation.

WHY FIXATION SHOULD BE EXTRACAPSULAR

This whole procedure as now evolved is designedly extracapsular, because its object is to restore the kidney as nearly as possible to its original relations and normal attachments. The normal attachments of the kidney are external to its capsular investments. This anatomic fact, generally recognized, is emphasized by Collins Warren of Boston, quoted by G. H. Mallett[10] that "by far the most important tissues concerned in maintaining the kidney in its normal position are the attachments between the posterior and upper aspect of the tunica fibrosa and the fascia covering the lumbar muscles and the peritoneum covering the diaphragm." H. Critchley Hinder,[11] of Melbourne, writing from a large experience, recognizes the rôle of the capsula adiposa, as he says, in holding the kidney in its normal position. This, I believe, is one of the fallacies of our latter-day teaching. It seems to me far more rational to believe that the capsula adiposa is a sort of "shock-absorber," if I may borrow an automobile phrase, and that when the kidney retains its position it is in spite of the looseness and instability of this structure. But even this conception of its function invests it with enough importance to entitle it to consideration, and I consequently agree with Hinder that in the pathologically movable kidney, "the fatty padding which encases the kidney is very loose and does not at all hold the organ in its grasp." It is important furthermore to remember that the intracapsular mobility of the kidney is essential to the normal exercise of its function and that that mobility is destroyed by reimplantation of the kidney following decapsulation.

It is likewise of importance to bear in mind that the muro-parenchymal implantation of the kidney following

6. Tr. Am. Assn. Obst. and Gynec., 1905, xviii, 1.
7. Detroit Med. Jour., 1906, vi, 1.
8. The Modification of the Technic of Fixation of the Movable Kidney, THE JOURNAL A. M. A., Dec. 8, 1906, p. 1917.
9. Bristol Med.-Chir. Jour., 1905, xxiii, 24.
10. Am. Med., 1902, iii, 513.
11. Intercolonial Med. Jour., Australia, 1903, viii, 499.

decapsulation not only interferes with the physiologic vascillation in the volume of the organ incident to its vascillating functional requirements, but subjects it to the damaging influence of vibrations incident to walking and riding and to shocks incident to more violent exercise of the body. In this way, as well as by the use of transfixion sutures, pathologic changes are induced in the organ.

Dr. Row, of Huntington, W. Va., brought me a case a year or so ago in which twenty months after operation by decapsulation and transfixion at the hands of another surgeon, I operated for relief of pain. I found that the kidney had been converted into three lobes by the transfixion sutures, and that it had a firm inelastic cicatricial envelope as the result of the decapsulation.

T. Carwardine,[12] reports a similar case in which the kidney was indistinguishably blended with the surrounding parts, but in which the kidney substance was paler and firmer than usual, and scarcely bled when cut as if a certain fibrosis had developed from the capsule along the trabeculæ.

Another case in point was brought to me a couple of years ago by Dr. Heflin of Newport, Ky., for fixation of the left kidney. The right one had been anchored several years before by one of the most distinguished operators in the United States, who employed the decapsulation-transfixion method, with the result that the kidney had been a constant source of pain from the date of operation. I anchored the left kidney by the method that I have just described with the result that it has been absolutely painless from the date of convalescence. When the patient was last seen, less than a month ago, both kidneys were firmly anchored, but the right one—the decapsulated and transfixed one—remained painful. The contrasting results of the two procedures were never more strikingly illustrated.[13]

Paul F. Freiderich of Greifswald[14] asserts that transfixion sutures always cut through, sometimes completely, and interfere with function.

CONCLUSIONS

In conclusion permit me to add that I have been induced to evolve and practice extracapsular fixation of the kidney, because (1) it is surgically feasible, (2) it is effective primarily, (3) it is generally, and indeed, as far as my experience goes always practicable, and (4) it comes nearer than any other procedure to restoring the pathologically movable kidney to its normal anatomic relations and to the exercise of its normal physiologic functions. I urge it as the operation of choice as against certain other procedures that are yet prevalent because, among the latter, (5) decapsulation is liable to induce and frequently does induce wholly unnecessary pathologic changes resulting either in its loss or in the invalidism of either the kidney or the patient or both; (6) transfixion sutures in the parenchyma may and often do induce similarly disastrous consequences; (7) treatment of the surface of the kidney by irritating substances induce adhesions and tissue changes that are pathologic in character; and (8) in consequence of the greater liability to hemorrhage and infection following all invasions of the true capsule and the parenchyma of the kidney and for other obvious reasons these procedures are more liable than extracapsular fixation to be followed by primary complications and final failure.

60 The Groton.

12. Bristol Med.-Chir. Jour., 1905, xxxii, 24.
13. Since this paper was read this patient has returned to the German Deaconess Hospital entirely incapacitated by pain in the right kidney. She has improved somewhat under rest, but insists that if the pain returns with the same severity as formerly the kidney must be removed if necessary for her relief.
14. Arch. f. Gynäk., lxxii, 368.

ABSTRACT OF DISCUSSION

DR. SAMUEL LLOYD, New York City: My criticism of Dr. Reed's operation would be that he fails to recognize the fact that a very large number of the patients with movable kidney have chronic nephritis. Dr. Edebohls called attention to this fact some years ago, and it was his observation in these cases that led him to perform decapsulation of the kidney for chronic nephritis. Often we do not discover that these patients are amicted with nephritis until we are operating on them. Dr. Reed, by using the fibrous bands in the fatty capsules for his fixation and leaving the capsula propria intact, would deprive the patients of the very best feature of their operative treatment, the cure of the nephritis by the decapsulation. It has been my experience in following up Dr. Edebohls' operation, that a great deal of benefit is derived from the decapsulation of the kidney and its fixation through the capsule, not through the kidney. I have not seen the difficulties Dr. Reed speaks of following exercise, such as pain or discomfort. The transfixion was given up by Dr. Edebohls many years ago, because fixation by means of the capsule gave better results.

DR. CHARLES A. L. REED, Cincinnati: I recognize the fact that pathologic conditions in an individual case may necessitate division of the capsule.

FURTHER REPORT ON ILEOCOLITIS COMPLICATED BY ACIDOSIS *

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Three years ago I presented to this Section a series of cases that had occurred under my observation during the preceding four years, and I now wish again to call attention to them by the relation of a few histories and by a brief discussion of the problems involved.

I have been unable to find descriptions in the textbooks of the symptom-complex presented by the series, and my object now, as three years ago, is to focus attention on and bring recognition of this distinctly marked symptom-complex. It is not reasonable to suppose that such cases are confined to one limited area. It is only reasonable to conclude that they have not been recognized elsewhere.

Thirteen cases have come under my observation since the report of three years ago, mostly in consultation, but this does not embrace a number of other cases that have come to my notice, directly and indirectly, in the practice of other physicians of our district. A large percentage of the whole series of thirty-two cases has occurred in breast-fed, well-nourished children, previously healthy and flourishing. The oldest of the series was 2½ years of age.

SYMPTOMS

Loose bowels, caused by a mild grade of ileocolitis and lasting from one to four days, precede the onset of the typical symptoms. Then labored breathing develops, often suddenly, followed by prostration, restlessness, obstipation, enlargement of the liver. The temperature

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

in some cases becomes subnormal, in others stands around 100 F.; in a few runs high. Vomiting with acetone odor of breath occurs in a good proportion and is absent in others. The urine is limpid and free. Albumin has been present in some and absent in others of the few cases from which urine could be obtained. Urine from three cases was submitted to chemists for nitrogen estimation, and in each instance the report was that the ammonia nitrogen was high. Jaundice was absent in every case.

During the period of labored breathing the breath feels cold to the hand held in front of the nostrils. This has been interpreted, whether rightly or wrongly, to mean volatile substances thrown out in the respired air. During this period of labored breathing, too, soot, in our locality, lines the interior of the nostrils, being, of course, mechanically deposited by the air as it rushes in. Some of the children noticed little unless their attention was especially attracted, but the impression given was that they were directing attention rather to getting air, as deep labored breathing without interruption, hour after hour, calls for attention on the part of any conscious breather.

OUTCOME

In fatal cases death occurs in from 48 to 70 hours after the onset of labored breathing, 55 hours being about the average.

In the cases recovering, the duration of the stage of labored breathing is about the same. Death seems to occur from exhaustion. Convulsions have not been noted and coma has not developed till within a few hours of death.

The mortality in a series of thirty-two cases, occurring in my own practice or in consultation, has been 71 per cent.

POST-MORTEM APPEARANCE

Post-mortem examinations have been made in nine of the cases. The findings have been negative, as to the gross appearance of the organs, with the exception of the liver and the mucosa of the intestine; these were injected in some cases, in others not. The liver usually showed yellowish areas on the surface, extending downward to varying depths. The gall-bladder in all cases has been distended with dark, green, ropy bile. Microscopic examination of the organs has only shown fatty degeneration of the liver. Neither the heart, the kidney nor the muscles have been found fatty in any instance.

TREATMENT

Treatment has varied from eliminative to symptomatic, with the employment of strychnin in good doses, epinephrin and hypodermoclysis of normal salt solution. I am under the impression that treatment avails little when a sufficient injury has been done the system, but that hypodermoclysis is of decided value when the injury is not sufficient to be lethal.

CASE HISTORIES

Of the fourteen cases encountered during the last three years only three will be cited.

CASE 1.—Infant L., male, white, aged 10 months; breast fed; large and plump; never previously ill. The only food given other than breast milk was a few feedings of farinaceous food at irregular intervals. For four days prior to onset of symptoms the mother had noted that the bowels were loose, but as the baby did not seem sick she paid no attention to it.

At 2 a. m. January 6, the mother found the baby breathing in a labored manner. The attending physician, Dr. Pressly, did not reach the child till 9 a. m., seven hours later, when he found it very ill and restless, respirations 48 per minute, temperature 101. Hypodermoclysis was employed in the afternoon and I saw him in consultation at 9 p. m. The respirations were 40, pulse 120, rectal temperature 99.5. The liver was palpable below the border of the ribs. Thursday the child was reported to have progressed fairly well, probably as the result of the salt solution, but on the next morning, Friday, was called to see him again to find him in desperate straits. Respirations were 56, labored, and with an expiratory moan. Pulse not perceptible at wrist, rectal temperature 100, extremely restless. Liver enlarged to over an inch below border of ribs. The child was conscious, was taking water freely, and the kidneys had been acting well; the abdomen was not distended. The child died at 2 p. m., sixty hours after onset of symptoms. In this case vomiting occurred during the first twenty-four hours and did not recur. Post-mortem one hour and twenty-five minutes after death; rigor mortis fairly well developed; discoloration of posterior surfaces of the body; abundant adipose tissue under skin of abdomen. Liver extends two and a half inches below ensiform cartilage in median line and one inch below free border of ribs; yellowish areas over surface of liver, decidedly lighter in color than remainder of organ, gall-bladder distended with a dark green, ropy bile; stomach distended with gas; contains some mucus and the mucosa was congested in places; intestine empty except for the same dark green bile found in the gall-bladder; kidneys apparently normal; lungs normal and pink in color; heart normal; liver weighs 360 grams.

CASE 2.—Infant L., male, white, aged 2½ years. The child was breast-fed until weaned at the end of the first year. April 30 the child had two bloody actions, for which castor oil was prescribed by the attending physicians. Friday the mother reported the child so much better that he was not seen. On Saturday the attendant again called to find him with labored breathing, but only thirty to the minute. Vomiting began at midday. After twenty-four hours' vomiting of the water given, coffee grounds vomitus began. The patient was seen in consultation Sunday afternoon at six. Respirations 35, labored and deep; pulse feeble and irregular, 135; liver one and a half inches below free border of ribs; attendant states that he examined the liver the day previous and it was not enlarged; that he examined it again that morning, Sunday, and found it an inch below the ribs with the child vomiting every few minutes a coffee-grounds material, and calling piteously for cold water, which would be promptly rejected. The child was pale and washed out, very restless; mental state clear; kidneys active.

Seen again next morning at eight, its condition was much worse; respirations 44, pulse not countable at wrist; temperature 101.4; vomiting of coffee grounds material still continued. The child called for water but would not respond to questions or apparently take notice of things about him, and died later in the day, 55 hours after onset of symptoms. No post-mortem.

CASE 3.—Infant B., male, white, aged 15 months; breast raised and still nursing. Lately the child had been given buttermilk in addition. It was a well-nourished baby. Seen in consultation April 21, 1910, a history was obtained of slight colitis from the seventeenth, four days previously. The child was not sick enough to cause any concern till the day previously when he developed labored breathing and vomiting. There was obstipation from the onset of symptoms; respirations were 34, labored and deep; pulse 128, easily compressible; abdomen moderately distended with gas, liver an inch below free border of ribs and very tender to pressure; acetone odor of breath quite marked; breath cool to hand; temperature 99.5; mind clear. Hypodermoclysis of normal salt solution, strychnin and epinephrin were recommended. Next day the respirations were 44, temperature 100, pulse 140. Respirations were not so labored as on preceding day, but on least exertion child was badly winded; acetone odor less marked; liver extends two inches below free border of ribs.

On the next day, April 23, the respirations were 33 and not labored, temperature 100.4, pulse 140; liver retracted somewhat from day before, and edge less sharp to finger. On April

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24 the child was better in every way; liver not palpable below border of ribs; barley gruel recommended.

A good report was received April 25, except that the barley water had disagreed, causing nausea and had been discontinued. April 26, in afternoon, there was a slight tendency to labored breathing noted on any exertion. Barley gruel and orange juice were given once, followed by vomiting, which kept up during the night and showed coffee-grounds material. When seen April 27, condition was desperate and had been so during the preceding night and that morning. The breathing could be heard as soon as one neared the room during the early morning hours. Respirations 40, pulse 160, child very restless; but vomiting had ceased; liver was felt one and a half inches below ensiform; tympany quite marked over abdomen.

On April 28 respirations 28 and not labored; pulse 150, temperature 100.2; tympany lessened. The child's condition was better and nourishment was again given, consisting of a half ounce of buttermilk. Medication consisted of strychnin and epinephrin. After the obstipation of the period of extreme illness, mucous stools reappeared and persisted during a tedious convalescence not complete to date.

This child received no nourishment from April 18 to 24, when barley water was given and disagreed. It was given barley water again on April 26, when vomiting was precipitated which came nearly being fatal. Buttermilk was given on the 28th and the child was nourished regularly thereafter. This recovery from a condition showing a mortality of over 71 per cent., and other recoveries from similar conditions under enforced starvation of from five to seven days, would seem to merit some attention, in view of the rôle assigned to starvation in the production of acidosis.

As to the nature of these cases, I have come to hold, tentatively, that they belong in the acidosis group; that a colitis, usually of mild type, through the production of some toxin, cripples the liver cells and, as a consequence of impaired liver function, products of faulty, incomplete metabolism are swept into the circulation and carried to the fixed tissue cells, which are dependent, of course, on the blood for proper nutritive and oxidative substances.

Dr. James Ewing[1] has presented elsewhere a thorough discussion, in which he freely admits the difficulties inherent in a question that involves the many unsettled problems of metabolism, and I think every one who has made any study of the question will fully agree with him. He divides cases of acidosis into two main groups: one without fatty degeneration, as represented by diabetic acidosis, and one with fatty degeneration, represented by the toxemia of pregnancy, delayed chloroform poisoning, Eck's fistula, cyclic vomiting in children and poisoning by hematoxic immune serum.

Only recently a professional neighbor was relating the history of a case of toxemia of pregnancy in a woman who had passed successfully through five pregnancies. With my own case in mind, he was asked if dysentery had preceded the onset of toxemic symptoms, and he replied in the affirmative. This question was further suggested by the history of a non-pregnant adult female, in whom a most serious acidosis was precipitated apparently by a mild dysentery.

If we are right in assigning our series of cases to the acidosis group represented by toxemia of pregnancy or by delayed chloroform poisoning, we have traveled only a short way on the road of explanation. We have not explained why the liver enlarges so rapidly; we have not explained the fatty degeneration of the liver, the changes in the bile, the obstipation, nor the factors involved in the air hunger.

Hematoxic immune serum injected into an animal produces fatty degeneration or necrosis, according to the dosage. A ligated hepatic artery results in increase of fats in the liver cells, according to Holmes and Pearce, but the explanation of these results leads to as many theories, practically, as there are investigators. So long as physiologic chemistry fails to account for all the processes involved in the functions of the liver, so long as physiology fails to agree on the functions of the liver, so long as the rôle of the internal secretions is undetermined and the intimate processes of cell nutrition, including tissue respiration, are matters of conflicting theories, it is not to be expected that definite conclusions will be formulated, either by the laboratory worker or the clinician.

Considerable effort was made to discover the explanation of the air hunger met with in all of this series of cases.

Haldane and his coworkers have apparently demonstrated that hyperpnea, labored breathing, results from carbon dioxid tension in the respiratory center, and that the threshold at which the carbon dioxid excites the center may be lowered by acid or other products resulting from the want of oxygen.

No cyanosis exists in any of the cases, as would pertain if the blood contained excess of carbon dioxid, and there is no lack of oxygen in the alveolar air inspired, so that some other factor must be involved beside want of oxygen in the alveolar air.

An original worker writes in a personal letter:

There may be incomplete oxidation in the presence of abundant oxygen in the blood, because the factors—enzymatic or otherwise—which normally cause oxidation are defective. This would, of course, be defective metabolism. Just what the factors of oxidation are, is the dark problem. The intermediate acids combine with the bases of the respiratory center (Na_2CO_3, $NaHCO_3$, $NaHPO_4$, etc.) and the free CO_2 resulting, remains in the center, causing increased tension and hyperpnea.

And thus we seem to be carried back to the original question involved in acidosis—the production of intermediate acids. Whatever the ultimate explanation of the air hunger, it appears reasonable to think that this explanation will mean the settlement of the controversy between those physiologists who hold respiration to be accounted for by the laws governing diffusion of gases and those who hold vital cell action to be involved.

1. Ewing, James: Acidosis and Associated Conditions, Arch. Int. Med., 1908, ii, 330.

ABSTRACT OF DISCUSSION

Dr. John Zahorsky, St. Louis: I have seen altogether five cases that fitted this syndrome exactly. All were fatal. I have studied this syndrome from a variety of standpoints, but a year ago I had a patient that put me on an entirely new track. This little boy, two and a half years old, had recurrent attacks of cyclic vomiting and in one of these attacks there seemed a little indigestion and the mother gave him a dose of calomel. This deep breathing developed and the liver swelled enormously, extending to the umbilicus. The pulse was not very full, the child was very sick and I was afraid it would die. That suggested how this syndrome might be explained, i. e., by acute dilatation of the right side of the heart. I could not explain how this liver could swell to twice its normal size except by edema or congestion, and passive congestion seemed to be the cause in this case, and that could most easily be explained by an acute dilatation of the right ventricle. We know that deep breathing is one of the symptoms of dilatation or weakness of the right heart. It is true

that there was no marked cyanosis or swelling of the veins of the upper extremity, but as there is diarrhea and vomiting with the loss of a large quantity of fluid, we can understand how there might be this accumulation of blood in the liver and yet not such an accumulation of blood in the upper extremities. One boy had spasmodic croup with severe suffocative attacks. I was asked to intubate the child and on examination no marked obstruction in the larnyx was found, but he had this very deep breathing which was mistaken for obstruction. The liver was enormously enlarged, reaching almost to the umbilicus. Another child had cardiac disease. He suddenly had some severe symptoms and developed this deep breathing and also had this swollen liver. I have concluded that this deep breathing and enlarged liver are due to an acute cardiac dilatation which may be incidental to any acute disease, such as acute gastritis, acute gastro-duodenitis or colitis, or severe vomiting forcing the blood into the heart and stretching the right ventricle. So, while I originally considered Parke's syndrome a definite disease, I believe it is merely a group of symptoms occurring in many diseases. The acidosis is due to faulty metabolism in the absence of carbohydrates, and is not the cause of the disease.

DR. ISAAC A. ABT, Chicago: I am already on record as having seen a number of these cases, I think a dozen or more. In nearly every one I have had an autopsy performed. In the first case, the child of a physician, the symptoms were pretty much as outlined by Dr. Parke. The child falls suddenly ill, vomiting, rapid respiration, rapid, small pulse, and goes gradually into a coma and last of all develops symptoms of obstruction of the bowel, due probably to extreme atony. They have all shown at autopsy, uniformly, fatty degeneration of all the organs. Dr. Ricketts, who did the autopsy work in the first case, thought that possibly the child might have eaten matches, so profound and extensive was the fatty degeneration. We found not only acetone but leucin and tyrosin in the urine. Dr. Ricketts found that the heart muscle and the intima of the vessel walls showed fatty changes. I think this is a syndrome that is a pathologic entity and depends on some grave toxemia. The acidosis is merely a symptom, and it is of no more importance than the rapid breathing, the rapid pulse, or the mechanical obstruction of the bowels, and it would be wrong to ascribe too much importance to it. I discussed these cases with a pioneer physician of Illinois and he suggested their close resemblance to the disease described as milk-sickness in cattle. Inquiring more closely into the subject one finds that milk-sickness or trembles bears a striking similarity in symptoms to those which Dr. Parke noticed in his patients.

DR. THOMAS D. PARKE, Birmingham, Ala.: There was no coma in any of these cases and there was no mechanical obstruction. There was dysentery and poor digestion and though the bowels did not act during the period of labored breathing, after this stage of labored breathing passed off, the bowels became loose again. I am sure there was no mechanical obstruction in any single case. I am sure not only from the post-mortems that I made but from the patients that recovered. There is a good deal more in the acidosis problem yet to be cleared up and I think you will agree with me if you will study the paper by Dr. Ewing in the December, 1908, issue of the *Journal of Experimental Medicine*. My conception is that the injury done by the toxins of this intestinal trouble cripples the liver-cells and when you get crippling of the liver-cells, the products of intermediate metabolism are carried into the general circulation and produce the air hunger. Dr. Ewing attaches immense importance to this fatty degeneration. He says that these studies of the last few years show the immense importance of fatty degeneration. But we do not know just what work the liver has to do. I have been unable to find any physiologist who could tell me the complete function of the liver. I do not know whether the trouble is in the liver-cells or in the blood that is in the liver, and until we can get thoroughly worked out the full physiology of the liver we shall not know its pathology.

SYPHILITIC DISEASE OF THE ARTERIES OF THE CENTRAL NERVOUS SYSTEM WITH DETAILED REPORT OF A CASE*

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The importance of arteritis or endarteritis as a lesion of syphilis has become well appreciated, especially since the writings of Huebner, Baumgarten, Marchand, Rieder, Nonne, and others. Only recently, however, has sufficient emphasis been placed on the tendency of specific arteritis to appear shortly after primary infection, and on the relative frequency of isolated involvement of the arterial system as compared to the other rather more familiar forms of nervous syphilis implicating the meninges and surrounding structures of the central organ, etc.

As regards the time elapsing between the occurrence of the initial sore and the intervention of symptoms of arterial disease, the tendency of recent writers on this subject, especially Nonne, of Hamburg, is to insist on the very early development of arteritis after the primary infection. The latter author quotes a case in which symptoms of cerebral softening occurred even before the primary sore had healed.

Not only is arteritis now looked on as an early process of syphilis, but it is even held that this lesion in its pure form practically does not occur in very late syphilis, and that nearly all cases occur within three years after the chancre.

Again it is necessary to recognize the frequency of arteritis as one of the grand diseases of the nervous system assignable to syphilis, because both treatment and prognosis are altogether determined by the nature of the processes in the nerve tissues associated with the arterial disease. Only by arriving at a proper conception of the lesions in such instances can the medical attendant properly interpret the phenomena occurring. It is rather probable that disappointment arising out of too sanguine expectations from the application of proper specific treatment, under the mistaken assumption that a gummatous or exudative process is being attacked, in instances of softening and hemorrhage in the central nervous organ, has been the occasion for physicians discarding the correct diagnosis of syphilitic disease, and consequently neglecting the effective agents of treatment subsequently.

It is unnecessary to dwell on the nature of the changes occurring in the arteries, because these are quite well understood. It is important only to recall that the process is practically always a proliferation of the intima with consequent encroachment on the lumen of the vessel and mechanical interference with the passage of the blood-current. And we do not have to wait for complete occlusion of the vessel in the expectation of symptoms, but a very important group of syphilitic nervous diseases is caused by mere diminution of the blood-supply to the tissues, giving symptoms of neurasthenia, transient pareses, and the like, not extending to the gravity of organic disease. In such instances the alterations in the arterial walls, especially in the smaller vessels, further interfere with the interchange of nutritive fluids, thus contributing to the so-called functional disturb-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

ances. As a matter of course, it is very important to interpret such symptoms correctly and early, for proper treatment is then most hopeful.

When actual hemorrhage, softening, or thrombosis occurs, the pathology and symptoms are in no wise peculiar to luetic arteritis, unless we regard the tendency of syphilis to select the branches of the middle cerebral artery as especially great. In my experience with a number of cases, I have found that the involvement of the arteries to the striate body, thalamus and the bulb especially frequent. The interesting lesions seen in the photographs of specimens from the case I am presenting, emphasize this. In this instance the lenticulostriate group of arteries were almost all completely obliterated, leading to practically complete death of these structures on the right side and pronounced softening on the other.

I deem it somewhat foreign to the purpose of the present paper to more than refer to the fact that syphilis is the remote cause of aneurismal processes very late after the infection, operating in conjunction with agencies tending to raise the blood-pressure, such as atheroma, cardiac and renal diseases. This latter observation, however, serves in this connection to emphasize again the great tendency of syphilis to inflict wide-spread damage on the arterial tree.

I shall finish these few generalizations with reference to a case in which I was fortunate enough to follow the symptoms over a period of twenty months, the case finally coming to necropsy. Although I was not able to get the necropsy done in the best manner possible, and to prepare the specimens completely, I have succeeded in securing photographs and slides of two transverse sections which display the most pronounced lesions in a fairly satisfactory manner.

History.—The patient was a white man, aged 36, single, bartender by occupation, and came under observation March 26, 1908. Aside from the fact that the father was alcoholic, the family history was negative. The patient was exceptionally well as a child and during adolescence. In fact, there was no illness of consequence until he acquired syphilis. Beginning at the age of about 25, he led a very dissolute life, drank alcohol steadily and went on occasional week-end drunks; used tobacco and drank coffee to excess. During September, 1906, he contracted a venereal sore and had well-marked secondaries. Treatment was instituted and kept up in a desultory way for two years after appearance of secondary symptoms. There was seemingly no further manifestation of syphilitic activity until November, 1907, when the patient sustained a stroke of partial hemiplegia of the left side. The hemiplegic stroke was, however, preceded by dizziness and malaise for several weeks; and on treatment the weakness on the left side improved greatly, but never got entirely well. A short time before my observation, he became dull and confused, laughed and cried without cause, and showed other signs of disturbed mentalization.

Examination.—On first physical examination (March 26, 1908), the following observations were made: All deep reflexes were exaggerated, but those of the left arm and leg were most pronouncedly so; ankle clonus partially developed on left, exhausting after a few seconds; the left epigastric and hypogastric reflexes were absent; Babinski sign present on the left, Gordon sign on the right; Romberg test positive. It was impossible to test sensation carefully on account of the mental state, though there was obviously diminution of pain sense on the left side of the body. There was marked weakness of the left arm and leg. With the hands, 38 kilos on right and 12 on left, could be registered on the dynamometer. There was no sign of facial weakness on either side. Tongue deviated slightly to the left; pupils equal, round, active to light and accommodation. There was very slight swelling of the optic disks with obscuration of the edges and what appeared to be a mild toxic retinitis. The patient articulated awkwardly as if the tongue and lips were stiff on voluntary movement, and the voice was nasal. The soft palate sagged, but was observed to move on forced voluntary effort, not, however, on stimulation. The heart and other important viscera were normal; urine examination being likewise negative. The bowels were obstinately constipated and the tongue had a white coating. Control of the bladder was somewhat impaired, though this could not be determined well on account of the mental state. No hardening could be detected in the peripheral arteries. The mental state was one of universal reduction of all the psychic aptitudes. Patient was unable to tell where he was or anything about his situation. On attempting to answer questions, there was an overplay of the facial muscles of expression and articulation, and the effort would almost invariably end in a fit of crying. Words were enunciated in a clumsy way, amounting to dysarthria. The tendency to weeping obviously did not signify affective depression but the emotional instability seen in cases of gross lesions of the basal structures, especially the optic thalamus and striate bodies. The patient had no care for personal cleanliness. These and numerous other faults of behavior seemingly have their explanation in the mental state of bewilderment and negativism present. Specific treatment was given, but was so poorly tolerated that it had to be used very mildly. The digestive functions seemed to be in abeyance, constipation was obstinate and the general state grew worse.

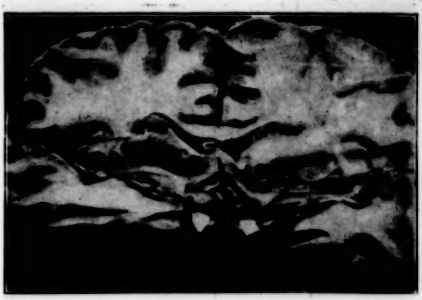

Fig. 1.—Syphilitic endarteritis.

Subsequent Course of Disease.—May 4, 1908: General state somewhat worse than on last observation; patient required careful nursing, drooled saliva and refused food. Emotional instability continued; patient articulated badly; the gait was now somewhat more spastic; condition of the eye fundus remained the same; Babinski sign was present on both sides. Specific medication increased in quantity.

June 9, 1908: The general state was observed to be improved; patient would now articulate his words better, knew that he was in the hospital, took his food better and gained in weight; spasticity in extremities was much diminished; Babinski sign present on both sides; deep reflexes greatly plus; most pronounced on left.

June 16, 1908: Condition quite the same as on previous observation, possibly a bit better. Patient left the hospital.

During the month of October, 1908, patient was seen casually on the street and seemed almost normal. The gait was unimpaired and he asserted that he could use his extremities as well as ever. He felt strong and expressed intention of resuming his occupation. He was readmitted Aug. 15, 1909, having become practically helpless in all four extremities.

October 2, 1909, the following observations were made: Patient's condition was worse than when first seen. He cried almost continually; signs of the old left hemiplegia were again prominent, and the right side was also weak and spastic; the arms were stiff and awkward on voluntary movement; pronounced weakness in both arms and legs, but most pronounced in left; deep reflexes greatly exaggerated on the

left, less so on the right; sustained ankle-clonus on the left; Babinski sign present on both sides. Sensation could not be tested on account of mental state. No athetoid movements or tremors present. The mental state was the same in kind as that seen on first observation, though of greater depth. The patient lay quietly and discharged the functions of his body without concern, requiring to be fed like a child. Articulation was scarcely intelligible, and he had great difficulty in swallowing. Specific treatment was again instituted, but totally disagreed and had to be withdrawn.

Nov. 28, 1909: Patient was bedridden and could scarcely swallow food from involvement of deglutitory muscles. The mental state was one of negativism, due to the profound reduction of all cerebral functions. He still continued to cry when aroused. Babinski sign was present on both sides; sustained ankle-clonus on left. The optic disks remained partially obscured as noted on previous observations. The patient moved his extremities in an awkward, ataxic, spastic manner; was obstinately constipated and abdomen was retracted. Patient was unable to swallow and seemed not to assimilate nourishment given by stomach-tube.

He died December, 1909, from inanition.

Clinical Diagnosis.—Syphilitic endarteritis of the central nervous system, with focus of hemorrhage or softening at first in the right internal capsule; later similar involvement of the left capsule. Probably multiple small foci about the hemispheres from rupture or obliteration of the smaller terminal vessels.

Fig. 2.—Syphilitic endarteritis.

Post-Mortem Findings.—There were found slight universal thickening of the dura, and wide-spread opacities of the pia with cystic formations in places. The walls of the large vessels at the base were observed to be thickened, especially the middle cerebral and its branches. Areas of softening were seen in the region of the two striate bodies, most marked on the right, where the lesion appeared older and involved the thalamus and practically all structures in the lenticulo-striate region, apparently destroying the majority of the fibers of the capsule. These were the two chief gross lesions, but numerous minute foci of necrobiosis were seen in the cortex and subcortical substance of the hemispheres.

Transverse sections of the spinal cord showed the left half of this organ to be distinctly less in volume than the right. The pyramidal tracts were seen to be greatly atrophied on naked eye inspection, apparently from secondary degeneration alone.

On account of the difficulties under which our observations were made, no Wassermann reaction could be done and no search for spirochetes made; but the clinical history and appearances of the lesions found were so overwhelmingly in favor of syphilis as to leave no reasonable doubt.

I realize the great interest that might have attached to a more detailed observation of the symptoms in the case and the exhibition of microscopic sections of the brain and cord in further illustration of the interesting pathologic lesions present. Lack of opportunity prevented my doing the former. I hope to complete the pathologic work later.

I have the pleasure to express my thanks to Drs. Daspit, Duval, and Couret, who have so kindly assisted me in securing and preparing the specimens.

1328 Second Street.

ABSTRACT OF DISCUSSION

DR. WILLIAM W. GRAVES, St. Louis: Dr. Hummel referred to the frequency of early arterial degenerations as a manifestation of syphilis, especially as pointed out by Nonne in recent years. This great clinical fact is one which is not appreciated. Early arterial degeneration after a syphilitic infection, no matter how carefully treated, is the one preeminent clinical fact on which one may oftentimes hinge a provisional diagnosis. Signs of arterial degeneration, occurring in a man before his time, and one being able to exclude metallic and other poisons as the cause, are in the majority of cases due to a former syphilitic infection. I base this conclusion not on that finding alone, but there are other clinical findings demonstrable in cases of syphilis two or more years after the infection, which are almost as constant as the arterial changes.

During the last few years I have given much attention to syphilis of the nervous system and post syphilitic conditions, and I have made careful studies not only of the arterial systems of syphilities, but also of their nervous systems; and from these studies it may be stated, though I may be considered radical when I do state it, that there are but few patients, however carefully we may treat them, who two years after a syphilitic infection will not show organic changes as demonstrable by a clinical consideration of the nervous system. Indeed during the secondary manifestations of syphilis in some cases which I have had the opportunity of studying, I have found distinct sensory loss, especially to pin pricks. This loss may and probably does remain throughout the life of the individual. A syphilitic may lead a healthful life, but he reacts badly. The individual who has had a syphilitic infection must be regarded as a blighted individual, reacting poorly to stresses and strains. Such individuals when studied, in addition to cardiovascular changes, show in the majority of cases changes in the oculo-pupillary apparatus and in the nervous system.

DR. GEORGE A. MOLEEN, Denver: I have been greatly pleased with the case report that has just been made, and I believe that this condition is too often neglected by reason of its frequent occurrence. The first phase that appeals to me in this paper is the evidence of neglected syphilis which has been the cause of the arterial degeneration. I have seen quite a number of cases of cerebral arterial degeneration in Colorado, and almost invariably the history of the syphilitic infection carries with it an incompleted treatment, or a treatment extending usually not over two or three months. The length of time of specific treatment, I think, is often in direct relation to the occurrence of an arteritis. I have seen in one instance the occurrence of a syphilitic arteritis within three months of the initial sore. In other cases they have gone, as has been the experience of others, as long as fifteen or twenty or more years. The mental confusion in the case just cited, I take it, is an expression of the general toxic effect of the syphilitic virus, which is further evidenced by the neuritis and the retinitis, and these are not commonly, if ever, present in pure arterial lesions. I do not believe that many such cases should occur if the proper mercurial treatment were established and continued, and particularly continued when once established. I think with Osler that it is lamentable that we should find arterial lesions in specific cases like these, which are so amenable to mercurial treatment.

DR. THEODORE DILLER, Pittsburg: There is a good deal of thickening of arteries, a good deal of arteriosclerosis, that is not syphilitic. For instance, I very often find thickening of arteries in boys with dementia præcox, and I believe that there

is a good deal in the inheritance of bad arteries, arteries which degenerate early, and I feel that we ought to be not too hasty in concluding that thickened arteries indicate specific disease, even in young persons.

DR. E. M. HUMMEL, New Orleans: Fourteen months elapsed between the time of the initial sore and the stroke of hemiplegia which this man suffered, which in the light of subsequent developments was undoubtedly assignable to softening in the right capsule due to obliterating endarteritis. I wish to insist again on the early occurrence of signs of specific endarteritis, dating from the time of the initial sore. Dr. Nonne in his comprehensive treatise, "*Syphilis und Nerven-System*," insists on this repeatedly, and comes to the conclusion that syphilitic processes of this kind always occur practically within three years of the time of the infection. I did not wish to be understood as confusing specific endarteritis with arteritis of other causation, and I quite agree with Dr. Diller that there are numbers of other kinds of endarteritis, but I think, everything considered, there is no doubting the specific character of the arteritic process in this case. There is one point that I should like to mention further in connection with the case, and that is that it is noted in the clinical symptoms that this man underwent great improvement under specific treatment and got practically well. The explanation of that is interesting. It is probable that there was a large exudate around the site of the original softening, and that it was absorbed under specific treatment. One thing further in this connection and of interest here is that when a person under the age of 40 sustains a stroke of hemiplegia or any other sign of gross focal, brain or spinal cord trouble, coming on suddenly, indicating either hemorrhage or softening, the presumption is very strong that such an accident at so early an age indicates the presence of arterial disease of specific causation and the case ought not to be deprived of a therapeutic trial with antisyphilitic agents.

A NEW METHOD OF VACCINATION

SIGMUND WASSERMANN, M.D.
CLEVELAND

All physicians will agree that with the vaccination method now in vogue, using the scarifier (*Impf-Lanzette*), we can never measure the extent of the trauma and therefore the resulting lesion. As a rule, with experience, we may strike just about the right thing, but in the case of a restless child an unexpected motion on our part or on the part of the patient makes us go beyond the intentional limits. A further point, which has not been considered sufficiently, is that such a large abraded area is a receptacle of a large quantity of vaccine lymph causing too strong a local reaction. Such and other drawbacks can be prevented by a new method, which I herewith present. This method revolves around the instrument to be used, which is the scarifier devised by Professor von Pirquet for his cutaneous tuberculin test. It is a small chisel with the sharpened edge of which the drilling of the skin is surprisingly painless, hardly perceptible by children.

MODUS OPERANDI

1. Clean the arm with water and soap, and then rub it thoroughly with alcohol.

2. Apply the vaccine lymph (pulp) on the skin by expressing a capillary tube or by smearing the lymph, in case one prefers the points.

3. Point the chisel perpendicularly to the surface of the skin and press against it with a few rotary movements or, as a child said, "use it like a screw-driver."

These few rotary movements suffice to produce both an abrasion of the skin and an implantation of a minimum amount of vaccine virus.

Within a minute a little wheal, a typical, reddish urticarial papule with a central depression, is formed. It is a vasomotor reaction produced by the blunt pressure of the instrument.

I always cease the operation when the superficial layers of the epidermis appear to be removed and a pinkish hue shines through from beneath (vessels of the pars papillaris corii). I have never seen a trace of blood oozing from the scarified skin, which is by no means an attribute of a successful vaccination, as some believe.

DEVELOPMENT OF THE PUSTULE

The course of development is as follows: The traumatic papule spoken of fades away in a few hours and the incubation period begins. Nothing is seen or felt until about the end of the first week, when a little elevation is formed around the point of trauma. A very small area of redness may be seen at this time. This papule transforms itself into a vesicle within the second week, and becomes mature at the end of second or the beginning of the third week.

The most striking peculiarity of this form of vaccination is the mild and slow development, so that neither children nor parents are aware of the effects of the vaccination until the pustule is well formed. In the

Vaccine pustules (new method). Strictly circular, of geometric accuracy. Although very close, their individual halo can be distinguished, no confluence having taken place. Surrounding tissue is only slightly involved.

majority of cases, no subjective symptoms worthy of being mentioned are complained of during the first week (itching). During the second and third week, when the pustule is ripening and the area congested, there is seldom felt a pain in the axillary region. I have not yet witnessed an involvement of the whole arm, as the reactive congestion is small and keeps within the nearest boundaries of the pustule; neither does a bacterial infection take place readily. I have not had a single case showing these little accidents, as in previous years, although the vaccinations performed this year surpassed all those of previous years, on account of the smallpox scare in Cleveland. I explain this in the following way:

Scarifying, especially crosswise, means dissemination of little traumatic lesions over an unlimited area. After the inunction a crop of little pustules will sprout, and a confluence takes place to form a large unbounded pustular surface with an extensive area (halo). The crust later formed cannot completely cover the wound. It is not uniformly thick to resist the exuberant fluid; the scab cracks; matter overflows, sometimes resulting in an unnecessary secondary vaccination, and (what is of more

importance) making an open door for a bacterial invasion. "A scarification produced by rotary movements is more advantageous than scarification by incisions, as it gives a very small superficial wound." [1] These advantages of the drilling method, emphasized by Von Pirquet in his cutaneous tuberculin test, hold equally good of the ordinary vaccination. With this new method, only a single traumatic circumscribed lesion is formed. A minimum of vaccine material is used, and an almost geometrically circular pustule ripens sharply. A crust is formed and covers the underground completely and cover and contents dry down slowly without breaking—the main issue in any uneventful vaccination.

The Majestic, E. Fifty-fifth Street.

A MODIFICATION OF THE YOUNG PROSTATIC TRACTOR

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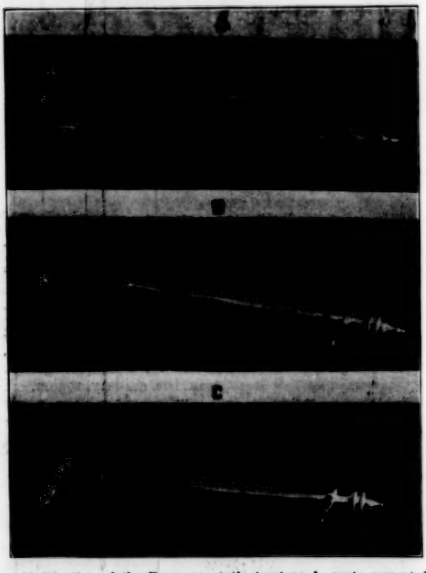
INDIANAPOLIS

I have used Dr. Hugh H. Young's prostatic tractor successfully in a number of perineal prostatectomies, yet I have found it very difficult of introduction in a few cases and have therefore devised the instrument here illustrated, which is straight and has the advantage of being



Modification of the Young prostatic tractor; A, parts separated for cleansing and sterilizing; B, instrument closed for introduction; C, instrument open for traction.

easily introduced through the perineal opening in the urethra. By turning the thumb-screw the blades are opened at right angles to the shaft, giving the shape and the tractile advantages of the original instrument.

316 Newton Claypool Building.

1. Von Pirquet: Therap. Monatsh., November, 1907.

COBWEB BRAIN

A CONTRIBUTION TO THE PATHOLOGY OF IDIOCY

EDWARD LIVINGSTON HUNT, M.D.
Instructor in Neurology, Columbia University; Visiting Neurologist to New York City Home for the Aged; Neurologist to the Penitentiary and Workhouse Hospitals; Senior Visiting Neurologist to the Hospital for Nervous Diseases of the City of New York
NEW YORK

The following case occurred in the service of Dr. Robert Abbe at St. Luke's Hospital, New York City. I was called to see the child in the capacity of acting neurologist.

The family were most insistent that something be done to investigate the condition of the child's brain, and therefore urged an exploratory operation.

Fig. 1.—Anterior view, showing the appearance of the frontal lobes; cerebellum is above and behind.

History.—Dorothy C., born Nov. 6, 1906, admitted to St. Luke's Hospital Feb. 27, 1910. The labor began on the morning of November 6; the premonitory symptoms were those of placenta prævia. The delivery, hastened by high forceps, was completed the same afternoon. The child was rendered conscious only after considerable efforts. The examination made at the time of birth showed an extensive cut over the right eye, and on both right and left sides an immense swelling at the back of the top of the head. The one on the right side was the larger. During the first month the child was kept in an incubator and sustained by nutrient enemas, gavage, and oxygen. For several days after birth the child had periodical convulsions, as was shown by facial distortions and rigidity of the muscles of the face and arms. These convulsions, which were accompanied by cries, lasted three or four minutes and occurred several times in a day. They lasted several days and then gradually disappeared. The child was apathetic, unobservant, and apparently without emotion. The hands were constantly kept clenched. An external stimulus would elicit a cry; it was thought that sight was present. The child gave every appearance, however, of being an idiot.

Physical Examination.—Well-nourished child of 3. The symptoms on admission were as follows: The child did not talk—never had. If laid on her back she would kick vigorously. Sight was undoubtedly impaired, although there was a distinct realization of the change from extreme darkness to light; the sense of hearing was very acute; the sense of pleasure was apparent, as was shown when a familiar voice spoke; the sense of taste was present, as the child rejected certain things and enjoyed others. The legs showed equal development; the use of the right hand and arm seemed to be better developed than that of the left. The color was good. The child could not sit up; if held up the head fell to the side. The skull was asymmetrical, the diameter from the right cheek being greater than that from the left. There was no depression on the surface; the fontanelles were closed. A lighted match produced a spasm of the entire body and for a brief moment caused the eyes to follow it. Immediately after, however,

they began to roam and continued to do so aimlessly. Drooling was frequent. The jaw was constantly in motion as if chewing. Sixteen teeth were present; they projected very little from the gums. There was no glandular enlargement. The ears were normal. The heart, lungs, and abdomen were normal. There was no rigidity of the neck. The limbs were stiff and spastic, showing occasional aimless movements, without apparent coördination. The kneejerks were exaggerated. There was no Babinski and no Kernig sign. A pin-prick caused no pain. Temperature 101.3, pulse 120, respirations 22.

Ophthalmoscopic Examination.—This, made by Dr. C. W. Cutler, showed that both pupils were dilated; the left reacted to light, the right did not. The media was clear; there was a temporal atrophy of both nerves; an irregularity of the chorioidal ring and a sharpness of the edges of the nerves.

Fig. 2.—Posterior view, showing normal size of cerebellum as compared with the very small shriveled appearance of the frontal lobes.

There was no exudate. There were some diffuse signs of an old chorioid retinitis. There was no nystagmus.

Operation.—On March 1, 1910, Dr. Abbe did an exploratory craniotomy. A curved incision 4 inches long was made in the right parietal region. The periosteum was elevated and, the opening enlarged with rongeur forceps. The dura mater was bulging but on incision collapsed. The entire right hemisphere was replaced by a reticulum of cobweb-like tissue filled with clear watery fluid. No cerebral substance could be seen at operation, and the wound was closed. This cavity was evidently the result of an old clot, as many adhesive bands were left behind. The patient survived a few hours.

Autopsy.—Performed by Dr. Zinsner. There was a marked asymmetry of the skull, the right side bulging forward especially over the right parietal surface. The sagittal suture ran backward and to the left and there was a slight protuberance of about 1 cm. in extent over the right frontal region. The external appearance of the skull was otherwise normal. Under the incision made at the operation, that is, on the posterior half of the right parietal bone, a disk of skull had been removed. On the removal of the skull-cap a considerable escape of fluid took place where apparently the saw had penetrated the dura. The lateral hemispheres were considerably contracted, leaving a large space between brain and skull. The right hemisphere of the brain showed a very great and marked degree of shrinkage. It was practically a complete atrophy of the hemisphere. There was considerable dense connective tissue, which apparently drew the convolutions together. The cortical substance was extremely thin. The lateral ventricles were very much dilated. The left hemisphere had been converted into a large cystic mass, the cortex in some places being as thin as paper, transparent and distended with fluid. The remaining cortical substance was very thin, showing an attentuated layer of brain substance. The basal portions of the brain were well developed and apparently normal.

Acknowledgement is due the House Staff of St. Luke's Hospital, especially to Dr. Heaton, for the courtesy afforded me and for the assistance in collecting these facts.

54 West Fiftieth Street.

UNUSUAL SITE OF TYPHOID PERFORATION

N. C. BLEDSOE, M.D.
BISBEE, ARIZONA

History.—July 8, 1910, J. H. M., a hoisting engineer, married, aged 37, came to see me, giving a history of trouble with his stomach. His temperature was 102.6 F., pulse 100. A diagnosis of typhoid fever was made and he was sent to the hospital, where he ran a very high temperature. He was put on a milk diet, given phenyl salicylate (2½ grs.) every three hours and sponged for temperature above 102.5. He was blue, so he was given whisky (½ oz.) after each sponging. Rose spots appeared on the fifth day in the hospital; on the seventh day he had a severe hemorrhage from the bowels. The patient was given morphin (¼ gr.), and all food withheld for forty-eight hours. He was given all the ice-cold normal salt solution that he would drink (he never made any complaint about it). In twelve hours his temperature dropped to 98, pulse 98, slower than it had been at any previous time. From that time until the tenth day he passed in all 73 ounces of blood. The abdomen was never distended, nor did the patient complain of any discomfort whatever. On the twelfth day at 3 a. m. he suddenly complained of severe pain in his stomach, radiating across the abdomen just under the costal arch. He was given codein (½ gr.) hypodermatically, and I went to the hospital as soon as I could. The codein quieted him a little. At 5 a. m. he had a chill and had very severe pain. Just previous to his attack of pain his condition was, temperature 101.6, pulse 104. When I examined him his pulse was 126, temperature 103 F., face drawn and anxious, both recti tense, but no distention. A diagnosis of perforation was made, relatives called, and all preparations made for operation. The family wanted consultation. A consultant was called and confirmed the diagnosis, but wanted to put off operating, as the patient was resting easily. One hour later his condition was decidedly worse; pulse 130, temperature 103, respiration 36. The relatives were told his condition. They decided, with the consent of the patient, not to operate.

The distention became very marked across the upper part of the abdomen above the transverse colon. The lower part of the abdomen remained flat, but more tense than ever. At 7 p. m. the patient died.

Perforation at the junction of pylorus and duodenum.

Autopsy.—This revealed typhoid ulcers over the whole of the intestinal tract; abdomen full of thin fecal matter; no perforation in the small intestine, or in the colon, but at the junction of the duodenum and the pylorus, as shown in the illustration, was the fatal perforation. On closer examination the perforation was found to be in the center of radiating bands of adhesions, looking like an old duodenal ulcer; it had healed and the typhoid infection had attacked this portion of the intestinal tract causing the perforation and death.

I can find no record in my medical literature of a perforation in this region, hence this report. We see so few perforations that it is hard to say definitely from

the symptoms just where a given perforation is located. In this case a median-line or a semilunar-line incision would have revealed to us nothing that we did not already know. We should have been compelled to admit our failure to find the perforation and would have been blamed for his death. Let us observe these symptoms of perforation more closely and see if we can arrive at some definite conclusion as to its seat.

SPOROTRICHOSIS

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

Since the publication of Schenck's[1] article, in 1898, less than a dozen instances of sporotrichal infection in man have been reported from America. France has furnished a vast majority of the cases up to the present, a fact which probably is due as much to the interest that the affection has aroused among French medical men (and the consequent recognition of the disease

Fig. 1.—Initial lesion on thumb.

when encountered) as to any excessive prevalence of the disorder in that particular part of the world.

CASE REPORTS IN THE LITERATURE

CASE 1.—Schenck's patient (whose case was the first in which the infecting agent was isolated and provisionally classified) was a male laborer, aged 36 years. The course of the disease was typical. Three months previous to the date of examination, the patient had sustained a slight scratch wound (from an iron nail) on the dorsal surface of the index-finger of the right hand. Shortly afterward, an abscess developed. This was opened, but refused to heal. Three weeks later, an ulcer appeared between the second and third metacarpophalangeal joints. Within a period of less than two months a series of cutaneous abscesses (seven in number) developed on the hand and the radial side of the forearm. These were incised, and a brownish, gelatinous, puriform material escaped, but the lesions persisted in spite of treatment. The epitrochlear glands were not involved. The axillary glands were palpable, but not especially enlarged. The subjective symptoms were practically nil.

Schenck obtained the organism in pure cultures from one of the lesions. It was an aerobe, grew readily on ordinary culture media at room temperature (although it flourished best at 37 C.), and was found to be pathogenic to dogs and white mice.

The morphology and development of the parasite were studied jointly by E. F. Smith, of the United States Department of Agriculture, and Schenck. Cover-glass preparations, from agar and bouillon cultures, showed thread-like mycelia (from 1.5 to 2 microns in diameter), with oval conidia (varying in length from 3 to 5 microns). The organism stained well in all the basic dyes, and was not decolorized by the Gram method. Smith tentatively assigned the fungus to the genus *Sporotrichum* (following Saccardo, in his "Sylloge Fungorum").

An examination of the affected tissues failed to show any characteristic changes other than those commonly found in chronic abscesses. Sections stained by special methods failed to reveal any micro-organisms whatever. The disease proved very refractory to treatment (the usual surgical measures being employed).

CASE 2.—Brayton's[2] case also occurred in a male, and followed a puncture wound (wire) of the finger. The succeeding chain of refractory, chronic abscesses extended from the finger to the elbow, and finally healed with considerable scarring. There was no bacteriologic examination.

CASE 3.—Perkins'[3] case, in which the diagnosis was made and the cultural work done by Hektoen, followed a slight abrasion (from a hammer) of the index-finger of the left hand. The patient was a boy, aged 5. When first seen, ten days after the accident, the affected finger was greatly swollen, and a deep, well-defined, undermined ulcer marked the site of the wound. The dorsal surface of the hand and the extensor surface of the forearm presented a chain of swollen lymphatics along which were about twenty nodules from the size of a small pea to a large hazel-nut. At this time there was no evidence of suppuration. About two weeks later the nodules began to break down, and, when some of them were incised and drained, it was found that a sinus, 4 inches long, connected two of the larger ones. The pus from the abscesses was of a mahogany color, and thick and gelatinous. Hektoen confirmed Schenck's findings, and, in addition, demonstrated the pathogenicity of the organism to gray mice, white rats, and guinea-pigs. He was able to find spores in the abscesses, but no mycelia.

In 1906, de Beurmann and Gougerot[4] published their first paper, adding three new cases to the list already reported, together with an additional one which had been recorded by de Beurmann, in 1903, as an instance of "multiple subcutaneous abscesses of mycotic origin." During the past four years these two investigators have reported other examples of the affection, and have done much experimental work with the parasite. They have endeavored to separate the disease into two clinical types, a "syphiloid" type and a "tuberculoid" type, according to the resemblance of the lesions to syphilitic gummata or to the warty, papillary growths seen in tuberculosis verrucosis cutis. In some respects the French cases differ clinically from those seen in this country. The affected areas are more numerous, and the abscesses are commonly hypodermic, although dermic, epidermic, and mixed examples have been recorded. It is probable that the organism as met in that country possesses some morphologic and cultural peculiarities not found in the *Sporothrix schenckii*, and it may be that Matruchot[5] is in the right when he suggests for it

1. Schenck, B. R.: Bull. Johns Hopkins Hosp., ix, 286.

2. Brayton, A. W.: Indianapolis Med. Jour., xviii, 272.
3. Hektoen and Perkins: Jour. Exper. Med., v, 77.
4. De Beurmann and Gougerot: Ann. de dermat., 1906, pp. 837, 914, 993.
5. Matruchot and Ramond: Compt. rend. Soc. de biol., 1905, p. 379.

the designation *Sporotrichum beurmannii*. In some instances, as in Dor's[6] case, the pus-containing cavities may be very large. Rarely, lesions are to be found on the mucous membranes (de Beurmann and Gougerot,[7] Letulle[8]): and even more exceptional are the instances of visceral infection (probable in the case reported by Massary, Doury and Monier-Vinard).[9] Monier-Vinard[10] found the sporotrichum in the expectoration of a patient who was at the same time suffering from pulmonary tuberculosis. Widal and Weill[11] have demonstrated the presence of the parasite in the blood, and have also shown the possibility of diagnosing the affection by means of the sporo-agglutination method (a point more fully described by Widal and Abrami,[12] in a later article).

Practically all of the recorded cases have followed infection through an open wound, but an external lesion is not absolutely essential. De Beurmann found the organism in a tonsillar crypt in one of his cases, and, in one instance, he succeeded in inoculating a very young guinea-pig by feeding it milk in which cultures of sporothrix had been placed (Mewborn).[13] In the

Fig. 2.—Cutaneous (dermic) abscess near right elbow.

seventy-four cases in which I have been able to obtain data, the average age of the patients was 43. The youngest was 5 (Hektoen and Perkins), and the oldest 78 years (Kren and Schramek).[14] There were fourteen females, and sixty males. In thirty instances the initial lesion occurred on the hand or forearm, and in eleven instances on the foot, leg or thigh.

In addition to the five cases of sporotrichal infection in man that I have found recorded from this country (Schenck, Hektoen and Perkins, Brayton, Burlew,[15] Trimble and Shaw),[16] I desire to report the clinical history and laboratory findings in a new example of this affection which has recently been under my observation.

6. Dor: Presse méd., 1906, No. 30, p. 234.
7. De Beurmann and Gougerot: Bull. Soc. méd. d. hôp. de Paris, 1907, p. 585.
8. Letulle: Presse méd., 1908, No. 23, p. 182.
9. Massary, Doury and Monier-Vinard: Bull. Soc. méd. d. hôp. de Paris, 1907, p. 476.
10. Hudelo and Monier-Vinard: Bull. Soc. méd. de Paris, 1908, xxv, 914.
11. Widal and Weill: Bull. Soc. méd. d. hôp. de Paris, 1908, p. 944.
12. Widal and Abrami: Bull. Soc. méd. d. hôp. de Paris, 1908, p. 947.
13. Mewborn: Excellent review, Jour. Cutan. Dis., 1908, p. 140.
14. Kren and Schramek: Wien. klin. Wchnschr., 1909, xxii, 1519.
15. Burlew: South. California Prac., January, 1909.
16. Trimble and Shaw: Kansas Med. Jour., September, 1909.

REPORT OF AUTHOR'S CASE

Patient.—E. R., a woman aged 30, housewife, seen in consultation with Dr. Willis L. Jacobus, of Ottawa, Kan. The cutaneous history of the family is negative. The patient is a native Kansan, and a resident of Ottawa, Kan. Her general health has always been exceptionally good, and there is no history of a serious illness. She has no children.

Present Illness.—Five months prior to the time of consultation, the patient experienced a prickling sensation in the ball of her right thumb. She thought it was due to the presence of a small splinter, and, after a fruitless search for the irritating fragment, dismissed the matter from her mind. A few days later, however, a painless, reddened papule developed on the area. The lesion slowly increased in size until it was as large as a small pea. Applications of a mud poultice were employed, and finally the epidermis exfoliated, with the development of a sharply outlined, oval ulcer, measuring 1 by 2 cm., and having a rough, bright red base. The entire lesion was covered with grayish pus. There was practically no pain. At this time the patient consulted Dr. Jacobus. He

Fig. 3.—Mycelia and spores from a 48-hour agar culture (1/12 oil immersion, Spencer).

thoroughly cleansed the part, and ordered the use of antiseptic dressings, frequently renewed. Four weeks after the appearance of the papule on the ball of the limb, a hard, cutaneous nodule developed near the base of the digit. Three days later, a second nodule appeared a few centimeters back of the first. At intervals of a few days, other lesions developed, until finally a chain of seven, extending from the thumb to the shoulder, was present. There was no involvement of the epitrochlear or axillary glands, and no elevation of temperature.

Physical Examination.—The patient was an intelligent young woman, a blonde, with a thin, smooth skin. A thorough general examination failed to reveal any abnormal condition of the internal organs. The mucous membrane of the mouth and pharynx was not affected. The first phalanx of the thumb of the right hand was considerably swollen. On its palmar surface was a well-defined, oval ulcer, with a rough, bright red, granulating base (Fig. 1.) The surrounding epidermal wall was undermined, and there was an abundance of grayish, tenacious pus. There were two small, excoriated papules, one on either side of the thumb, midway between the ulcer and the first joint. The nail was not involved. The areola of hyperemia which usually surrounds an inflamed wound was here quite narrow, and there were no red streaks extending up the arm. Just over the first carpometacarpal articulation was a hard nodule, the size of a large pea. It was not adherent to the underlying subcutaneous structures, and gave

rise to no subjective symptoms. The overlying epidermis was normal in color. Two centimeters farther back was a second lesion, smaller than the first, and of a purplish hue. It was quite soft to the touch. Immediately below the anterior fold of the elbow-joint was a larger tumor (Fig. 2) (1.5 by 2 cm. in diameter, and 1 cm. in height), which was also purplish in color, and soft and compressible. Higher up, on the inner surface of the upper arm, were four more nodules, arranged in an irregular chain. In only one of these could fluctuation be obtained. The epitrochlear and axillary glands were not palpable. The signs which commonly mark the presence of an ascending cellulitis were absolutely lacking. The patient's temperature was normal, and she stated that if she had not seen the nodules on the wrist she would not know they were present. Permission to excise one of the smaller lesions was firmly refused.

Bacteriologic Examination.—A clinical diagnosis of sporotrichosis was made, and the case referred to Dr. W. K. Trimble, of this city, for bacteriologic examination. The large lesion near the elbow-joint was incised, under the usual precautions, and two agar and four glycerin-agar tubes inoculated. The pus was of a mahogany color, thick, stringy, and of the consistency of syrup. The tubes were placed in an incubator at 37 C. Four days later, there were abundant growths on all six. On investigation, it was found that pure cultures of the organism had developed on five of the slants (Fig. 3) (one glycerin-agar tube having become contaminated). Some of the patient's blood was secured, and an effort made to prove the feasibility of the sporo-agglutination test. The method was found, however, to be of more theoretical than practical value.

Treatment.—Potassium iodid, in doses of from 2.0 to 3.0 gm. per day, has been found to be almost a specific in this disease (I am unable to discover who first suggested its use). Locally, a saturated aqueous solution of the same salt, or one of the iodin, potassium iodid, and oil mixtures, is of great value. The patient was placed on this line of treatment with extremely satisfactory results. When I last saw her, ten days after the first consultation, the lesions had almost entirely disappeared.

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A CONTRIBUTION TO THE SUBJECT OF TUMORS OF THE HYPOPHYSIS

DEAN D. LEWIS, M.D.
CHICAGO

I. TUMORS DEVELOPING FROM CRANIO-PHARYNGEAL DUCT INCLUSIONS

In 1902 Saxer described an epithelial tumor which replaced the infundibulum of the hypophysis, filled up and distended the recessus infundibuli and the recessus opticus, and extended into the third ventricle so as to form a part of its floor, also into the lateral ventricle through the foramen of Monro. The anterior lobe of the hypophysis was normal and the tumor was unconnected with the choroid plexus. The nodular, free surface of the tumor, especially that projecting into the third ventricle, had a definite papillary structure. The papillæ consisted of a fairly thick connective tissue ground work, which was covered by epithelial masses, the general arrangement of which corresponded to that of stratified flat epithelium. The most superficial epithelial layers consisted of flattened cells which were fusiform on cross section. The deeper layers were cubical or cylindrical and the cytoplasm of cells was markedly vacuolated. The vacuolation was one of the most striking features of the histologic picture.

In discussing the origin of this tumor Saxer states that he believed at first that the position of the tumor, especially its relation to the floor of the third ventricle, which formed a considerable part of the upper surface of the growth, warranted him in concluding that it developed from the epithelium of the ventricle or its recess. He later changed his opinion regarding the origin of the growth, because of the character and arrangement of the connective tissue and the appearance of the epithelium, which resembled closely stratified, flat epithelium. He came to the conclusion that the cells of which this tumor was composed resembled morphologically the cells surrounding the infundibulum, which form what is now known as the pars intermedia. The relation of the pars intermedia to tumor formation will be discussed later.

Saxer in closing the discussion of this tumor states that he did not know of a record of a hypophyseal tumor with similar histologic characteristics. Scattered throughout the literature are descriptions of solid and cystic tumors occurring in the position occupied by the one described by Saxer. These have so many common gross and microscopic characteristics that they should undoubtedly be classified together. They appear in the literature under a number of different terms, such as epithelial tumor of the infundibulum and third ventricle, papilloma of the choroid plexus of the third ven-

Fig. 1. Photomicrograph of section prepared from tissue removed from Case 1. The tissue has a papillomatous structure. Cylindrical cells rest on the connective tissue stalk of the papillæ, while the succeeding layers of cells vary in form, the difference apparently being due to pressure. Histologically this growth corresponds to a group of tumors which occur about the infundibulum and develop from cranio-pharyngeal duct inclusions.

tricle, cystic endothelioma developing from the pia mater, epithelioma of the Malpighian type, adenoma and adeno-sarcoma of the hypophysis. Before discussing the origin of these tumors, I wish to cite the histologic descriptions of some of the reported cases in order that I may compare the histology of these with that of the growth which I have examined.

Wagner in 1861 described a growth situated behind the optic chiasm, which displaced the optic tracts to either side. The tumor was composed of many small cysts separated by thin septa. When the posterior part of the growth was incised a cavity leading into a dilated third ventricle was exposed. The lateral and fourth ventricles were normal; the anterior lobe of the hypophysis intact. The cyst walls were composed of a

vascular connective tissue. On the outer surface were numerous long, villus-like bodies which were covered with many layers of epithelium. The cells covering most of the villus-like projections were cylindrical. In some areas they resembled those of mouth epithelium while in others they were irregular in form and grouped in masses. Wagner expressed no opinion concerning the nature of this cyst which contained free cells and cholesterin crystals.

Langer[1] in 1892 reported two cystic growths which surrounded the infundibulum and extended up to the floor of the third ventricle. The walls of these cysts were composed of delicate, cellular connective tissue and supported papillary excrescences, which were covered by cylindrical epithelium. Langer came to the conclusion, after gross and microscopic examination, that these cystic growths took their origin in the infundibulum and that they developed from pieces of tissue constricted off from the anterior extremity of the central canal.

Harbitz describes a tumor which evidently belongs to the same group. It occurred in a woman 58 years of age, who presented none of the symptoms of acromegaly, but other symptoms associated with hypophyseal growths. The tumor occupied the position of the hypophysis. It was as large as a walnut and extended along the infundibulum upward to the floor of the third ventricle, with which it became continuous. The chiasm was stretched over the tumor, the right optic nerve was flat and ribbonlike and the right optic tract could not be distinctly seen. The left optic tract and nerve were normal. Microscopically the tumor presented a fairly uniform structure. The cells were grouped into masses of various shapes and sizes separated by a connective tissue stroma. The cells resting on the stroma were cylindrical with clear cytoplasm, while those occupying the center of the masses were polygonal, round or oval. In many fields the histologic picture resembled that of a papilloma. Harbitz believed that the tumor was an adenoma, although there were evidences of proliferating growths along the periphery.

The histologic characteristics of the tumors mentioned above have been cited at some length in order that they may be compared with those of a growth which, through the kindness of Drs. A. E. Halstead and E. R. LeCount, I have recently had the opportunity of examining. The growth was removed by Dr. Halstead at St. Luke's Hospital, Chicago, from a patient presenting the symptoms associated with hypophyseal growths but without acromegaly.

CASE 1.—The patient, a man aged 39, gave a history extending over a period of two years. He complained first of a frontal headache of a peculiar pricking or sticking character. A year later his eyesight began to fail. A perforated nasal septum and aortic regurgitation suggested the possibility of cerebral syphilis and vigorous antisyphilitic treatment was therefore instituted. It was continued for a number of months without improvement. There were no symptoms of acromegaly. The patient had been impotent for eighteen months. The external genitalia were, however, well developed; there was no adiposity or suggestion of the feminine type.

The diagnosis of an hypophyseal tumor was not made until bitemporal hemianopsia was added to narrowing of the visual fields and bilateral optic atrophy developed.

The diagnosis was verified by an *x*-ray picture which revealed a shadow occupying the sella turcica and apparently extending upward toward the floor of the third ventricle. The detailed history and postoperative course of this case have been reported by Dr. Halstead.[2]

Microscopic Examination.—Several fragments of tissue removed during the operation were submitted to me for examination. The tissue was fixed in Zenker's fluid and imbedded in paraffin. The sections were stained with hematoxylin and eosin, Van Gieson's picro-fuchsin, iron-hematoxylin and neutral gentian. The last two stains were used to determine whether or not intercellular bridges and specific granules were present.

Microscopically the growth presents a fairly uniform structure. It is quite cellular, the cells being grouped in masses of various shapes and sizes, which are separated by a delicate connective tissue stroma. In some regions the epithelium has a definite arrangement, a number of layers of cells resting on connective tissue forming the stalk of a papilla. The cells resting on the connective tissue are cylindrical; the cells of the superimposed layers are polygonal or fusiform, being considerably modified by pressure. The cylindrical cells stain differently. In some fields the part of the cell adjacent to the stroma is clear and vacuolated, the distal part staining heavily with eosin; the polygonal and fusiform cells, as a rule, have a clear cytoplasm which is vacuolated.

One of the most conspicuous features of the tumor is its papillomatous structure, but this is not found in all regions. In some the cells covering the connective tissue stalk are not separated from each other, the epithelial masses appearing to be fused. Histologically it appears as if the epithelial masses have been sunken into the connective tissue stroma, the picture often resembling that of a carcinoma, although there are no other cellular changes characteristic of malignancy. Secondary papillæ have developed from the primary. In some areas these seem to be connected with the parent

Fig. 2.—Section of tissue removed from Case 2. The cell columns have fused. The cells found in this tissue are almost entirely of the eosinophil type. Hyperplasia is indicated by the large, irregular, fused cell columns, the preponderances of eosinophil cells and karyokinesis, which can be seen with the oil immersion lens (Zeiss Compens. Oc. 6, obj. 8 mm.).

papilla by a narrow pedicle; in others they lie free. The tissue, because of the peculiar arrangement of the secondary outgrowths, presents in many fields an alveolar structure. In some regions the lumen appears to be the result of the degeneration and subsequent liquefaction of cells, in other places masses of what appear to be colloid are present in the lumen of these cellular outgrowths.

I have been unable to demonstrate cells in these sections which resemble those of the anterior lobe of the hypophysis. Delicate granules can be demonstrated in some of the cells by the neutral gentian stain, but they do not have the characteristics of the chromophile cells of the anterior lobe. They correspond to nodal points in the spongioplasm of the cell. There is no evidence of keratohyalin or of psammoma granules. The endothelial cells of the blood-vessels, which are abundant, are not proliferating and the cells composing the tumor do not have the radiating, mantle-like arrangement of a perithelioma, so I believe that the tumor cannot be regarded as of either endothelial or perithelial origin. It presents none of the characteristics of a glioma or ependymal tumor. Nothing definite

1. Langer, F.: Ueber cystische Tumoren in Bereiche des Infundibulum Cerebri, Zischr. f. Heilk., 1892, xiii, 57.
2. Surg., Gynec. and Obst., May, 1910.

can be said concerning the topographical relations of this growth as the field of operation is so deep and restricted in such cases. I believe, however, that it may justly be assumed from the *x*-ray findings that the tumor lay beneath the floor of the third ventricle and extended downward into the sella—a position occupied by the group of tumors under consideration.

There have appeared in the literature reports of several tumors in this position which have presented clinical as well as histologic similarities. None of these has contained elements peculiar to the anterior lobe of the hypophysis and as a consequence there has arisen con-

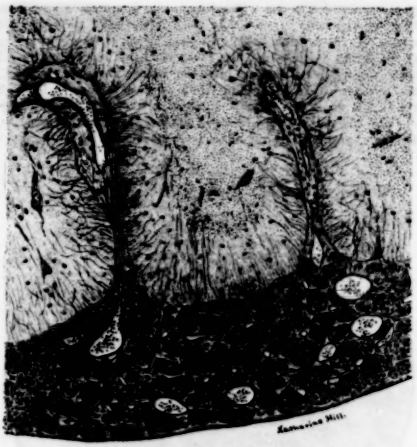

Fig. 3.—Pars intermedia of the ox.

siderable confusion as to their classification and origin. Because these growths are not associated with acromegaly, considerable doubt has arisen concerning the causal relationship between tumors of the hypophysis and this disease.

As previously mentioned, Saxer believed that the tumor observed by him took origin from a group of cells which are normally found about the infundibulum. These cells are regarded by a number of investigators as chief cells of the anterior lobe, which have invaded the infundibulum. This is apparently the view of Löwenstein. He states that his observations support the view of a number of other investigators who have found that in almost every adult the cells of the anterior lobe have invaded the posterior lobe. These cells in man lie in small groups surrounded by well developed connective tissue. They may be collected in solid cords or arranged in the form of a vesicle containing material resembling colloid. Those occurring in solid cords differ morphologically from the chief cells found in the anterior lobe, as the cytoplasm is more dense and stains more deeply. As far as I can determine, these cells are not so often vacuolated as those of the anterior lobe. The vesicles containing a colloid material are lined by a low cubical epithelium, the cells of which usually have a clearer cytoplasm than the other cells occurring in this region.

These cells are not to be regarded as invasions from the anterior lobe, but as distinct cellular elements of the hypophysis, forming what has been called by Herring the pars intermedia. In man the development of this portion of the gland has apparently been somewhat suppressed. In the pig and ox, however, the pars intermedia has attained a much greater development, forming a large group of cells, which lie posterior to the hypophyseal cleft, the remains of the cavity of the hypophyseal vesicle. The cells of the pars intermedia in both the ox and the pig have a clear non-stainable cytoplasm and are grouped in cell columns with and without a lumen, the columns resting on the walls of numerous capillaries. The cells of the human hypophysis—which are regarded by many as ingrowths of the anterior lobe—undoubtedly correspond to those of the well developed pars intermedia of the pig and ox. Morphologically these cells are distinct, differentiation being well established, in a pig measuring 5 cm. Tumors with distinct morphological characteristics arise from the pars intermedia. The cases which have been observed will be mentioned later.

The tumor removed by Dr. Halstead does not contain any of the cellular elements peculiar to the anterior lobe and the pars intermedia. It corresponds in many respects to the descriptions of tumors given by Saxer, Harbitz, Babinski and Onanoff and others, which have been observed about the infundibulum. Some of these have been solid growths, the majority have been cystic. I believe that Saxer was wrong in thinking that the tumor described by him developed from the cells of the pars intermedia. His statements that the epithelium occurring in the tumor observed by him resembled stratified, flat epithelium is sufficient to exclude origin from these cells.

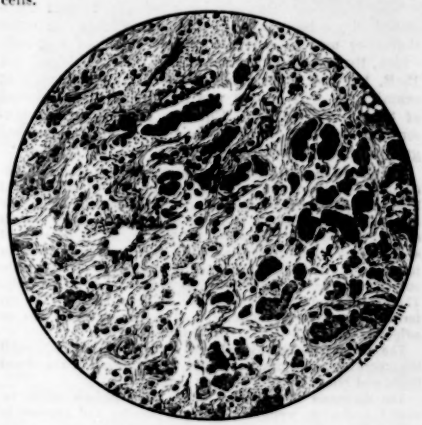

Fig. 4.—Cells of the pars intermedia of the human hypophysis showing their distribution in nervous tissue.

Erdheim[4] was the first to recognize that a number of growths which had been found about the infundibulum, and had appeared in the literature under a number of different terms, belonged to one group. In 1904 he published a monograph dealing with seven cases which he had studied personally and with twelve cases collected from the literature which had appeared under a number

4. Erdheim, J.: Ueber Hypophysengang- Geschwülste und Hirn-Cholesteatome, Wien., 1904.

of different terms. Among the twelve tumors found in the literature, four were solid and eight cystic. Erdheim in examining his cases found cells with distinct intercellular bridges and epithelium which resembled closely stratified epithelium. In order to determine the frequency with which islands of undifferentiated cranio-pharyngeal epithelium occur in the hypophysis, he made serial sections of twenty glands. As islands of cranio-pharyngeal epithelium cannot be accurately determined in the fetus and newborn, because of the failure of complete differentiation, but thirteen glands were used in his studies. In ten of the thirteen cases he found islands of undifferentiated cranio-pharyngeal epithelium within the gland. The epithelial islands were situated in the infundibulum and the upper surface of the anterior lobe adjacent to it; also on the anterior surface of the posterior lobe. This peculiar distribution of this type of epithelium is due to the position of the cranio-pharyngeal duct in the final development of the gland.

While I have been unable to demonstrate intercellular bridges in the tumor under discussion I believe that it has enough of the characteristics common to this group to warrant one in placing it here. The epithelium of the cranio-pharyngeal duct is capable of forming adult cellular elements which differ markedly morphologically. The growth just described corresponds more closely to those arising from cranio-pharyngeal epithelium than to any other.

Some twenty-nine tumors have been described which belong to this group. The sex has been mentioned in twenty-eight, the tumor occurring nineteen times in the female and nine times in the male. The average age at which the tumor has developed is 32. The youngest patient was 9 years of age, the oldest 63.

The clinical courses of these cases have had fairly wide limits. Some cases have run a course of six or eight years, while others have been extremely acute. The patient observed by Bregmann and Steinhaus[5] had been perfectly well four weeks before entering the hospital. Her illness began with severe pain about the left eye and convulsive movements of the left eyelid. Three weeks later she became apathetic, desired nothing to eat, gave no reply when talked to and showed no concern about her condition. General weakness was a marked feature of the clinical picture. She could not sit upright in bed without considerable difficulty and could not stand without assistance. The gait was ataxic, the left pupil dilated and immobile. Ptosis of the left lid, limitations of movements of the left eye upward and inward, spasm of the left orbicularis oculi, paresis of the lower branches of the right facial, paresis of the right side, especially of the lower extremity, ataxia of the right upper extremity, nasal twang to the voice and some difficulty in swallowing completed the clinical picture. The ophthalmoscopic examination was negative. The clinical diagnosis rested between brain tumor and encephalitis about the crura. The rapid clinical course and absence of pressure symptoms favored the diagnosis of encephalitis.

In Bartels' case the usual symptoms of brain tumor—dizziness, headache, vomiting and mental dullness—were absent and the pulse was constantly rapid. In this case the boy developed normally until 14 years of age, when the changes associated with dystrophia adiposo-genitalis developed rapidly—the clinical course of the tumor extending over a period of seven years.

No definite symptom-complex accompanies the development of these growths. Most of them have been associated with the usual symptoms of brain tumor, but these may be wanting or not pronounced as in the two cases cited above. The most striking clinical feature, also perhaps the most constant, is the early loss of eyesight, optic atrophy developing in most of the cases without preceding choking of the disk. Choked disk is apparently much less common with hypophyseal than other intracranial growths. Bartels[6] has collected forty cases of tumors of the hypophysis and studied their relation to choked disk. In twenty of these, 50 per cent., there was simple bilateral atrophy, one unilateral atrophy, in 15 per cent., double choked disk, in 15 per cent. neuritis with subsequent atrophy and in 10 per cent. there was no change at all. These statistics do not support Berger's statement that a very considerable percentage of the tumors of the hypophysis are accompanied by choked disk instead of optic atrophy.

In the clinical histories of nine of the recorded cases of tumor involving the infundibulum—only cases are included which apparently developed from cranio-pharyngeal inclusions—it is noted that the patient was fleshy or had some evidence of interference with genital development, such as small external genitalia or the absence of or falling out of pubic and axillary hair. About 32 per cent. of the cases, then, have had some or all of the features associated with dystrophia adiposo-genitalis.

It has been recognized for a long time that deposition of fat and the development of the feminine type were frequently associated with hypophyseal tumors.

The cause of these trophic disturbances has been variously interpreted. Erdheim believes that the adiposity with genital atrophy, and in the male, with the development of the feminine type, the syndrome described by Fröhlich, is not due to any interference with the function of the hypophysis, but that it is the result of pressure exerted on certain centers at the base of the brain by the enlarging tumor. He has noticed that this syndrome has been most frequently associated with those tumors which grow out of the sella and extend to the base of the brain, and with those in which the tumor has not developed in the sella or the hypophysis proper, but from the infundibulum. In support of his view he cites a number of cases, such as those of Selke, Boyce and Beadles,[7] Babinski, Cestan and Halberstadt and Gläser. The view advanced by Erdheim is supported by Bartels. It is an interesting fact that in all of these cases the tumor was so situated that it could easily interfere with the function and viability of the cells of the pars intermedia, even if the anterior lobe of the hypophysis were intact.

Fat may be taken on rapidly with brain tumors not occupying the sella or occurring about the infundibulum. The rapid deposition of fat is explained in these cases by the sedentary habits which the patients are obliged to lead as the result of loss of vision or to the apathy attendant on increased intracranial pressure. There is, however, no group of intracranial tumors so frequently associated with the Fröhlich syndrome as those occurring about the infundibulum, which during growth must interfere with the function of the cells of the pars intermedia. As previously mentioned, these cells are entirely distinct from those of the anterior lobe, and while one cannot assume that differences in morphology indicate differences in function, one cannot help being struck with the frequency with which these in-

5. Bregmann, L., and Steinhaus, G.: Zur Kenntniss der Geschwülste der Hypophysis u. der Hypophysisgegend, Arch. f. path. Anat. u. Physiol. u. f. klin. Med., 1907, clxxxvii, 360.

6. Bartels, M.: Ueber platten Geschwülste der Hypophysengegend. (des Infundibulums), Ztschr. f. Augenh., 1906, xvi, 407.

7. Boyce, R., and Beadles, C. F.: A Further Contribution to the Study of the Pathology of the Hypophysis., Jour. Path. and Bacteriol., 1893, i, 359.

fundibular tumors—composed of a type of epithelium foreign to the hypophysis—are associated with Fröhlich's syndrome.

The association is so common that one is justified in making a diagnosis of an infundibular growth—probably of cranio-pharyngeal origin—when this syndrome, accompanied by eye changes, develops without any symptoms of acromegaly.

Cushing's[8] experimental work would seem to indicate that hypopituitarism is the cause of dystrophia adiposogenitalis. This syndrome may be associated in acromegaly. It is difficult to explain this combination of symptoms, if acromegaly is dependent on hyperactivity of the gland, unless we assume that the growth associated with the acromegalic symptoms has interfered with the activity of another part of the gland with a different function.

Creutzfeldt's table, published in 1908, shows that tumors developing from inclusions of the cranio-pharyngeal duct are the most common of the growths of the hypophysis unassociated with acromegaly. The following table indicates the frequency of different varieties of tumors in 55 cases of tumor of the hypophysis without acromegaly which came to autopsy:

No. Cases.	Character.	Per Cent.
19	Cranio-pharyngeal duct tumors	34.54
15	Sarcomas	27.27
5	Hyperplasiæ	9.09
3	Strumas	5.45
10	Adenomas	18.18
1	Metastatic growth from thyroid tumor	1.818
1	Teratoma	1.818
1	Lipoma	1.818

II. TUMORS DEVELOPING FROM THE PARS INTERMEDIA

Three cases are found in the literature in which the tumor originated in the cells of the pars intermedia.

Boyce and Beadles describe a small tumor at the base of the brain, which rested on the pituitary body but was entirely outside of the sella turcica. The tumor, which was round, firm, and as large as a medium-sized pea, appeared to be an accessory pituitary body. The gland was of about normal size and appearance and was quite independent of the tumor, except for a slender connection passing up to the infundibulum, from which the accessory body appeared to take origin. Microscopic examination showed that the infundibulum enlarged just above the hypophysis to form a small tumor which measured ¼ inch in diameter and projected posteriorly. The tumor was composed of large polygonal cells, larger than those met with in the anterior lobe. A few cells were polynuclear. In some instances the nuclear staining was poor. A definite, acinar grouping of the cells was only slightly apparent at the periphery, but numerous capillaries tended to produce a certain amount of lobulation. One must conclude from the description of the growth and the accompanying figure that it developed from the pars intermedia.

Erdheim mentions a growth which apparently originated in the pars intermedia. It occurred in the infundibulum of a woman 86 years of age and was about as large as a hemp seed. Microscopically it consisted of large cells with heavily-staining cytoplasm, which had grown into the fibrous tissue of the infundibulum, as the normal cells of the anterior lobe so frequently do, as Erdheim states.

Cushing in a recent article states that Crowe, while studying sections of a large adenomatous tumor at the base of the brain, removed from an excessively obese individual, who had died of pressure effects, found a normal, though compressed, anterior hypophyseal lobe with undoubted evidence that the growth originated from the pars intermedia alone. The vesicles contained colloid and the tumor resembled in its arrangement one which might have originated from the thyroid gland.

These are the only undoubted examples of tumors arising in the pars intermedia. I believe it quite possible, however, that some of the peculiar types of sarcoma and adenoma may have arisen from this portion of the gland, for mistakes in anatomic diagnosis could easily be made if the structure of this part of the gland were not recognized.

The tumors described by Boyce and Beadles and Erdheim occurred in women aged 74 and 86 respectively. Neither tumor had given rise to symptoms, being discovered accidentally during routine post-mortem examinations. The age and sex of the case observed by Cushing are not given. It is to be noted, however, that in this instance the patient was excessively obese.

III. HYPERPLASIA OF THE ANTERIOR LOBE OF THE HYPOPHYSIS WITH ACROMEGALY

CASE 2.—The patient was an unmarried woman aged 32. Her illness began two years ago with eye symptoms. Various diagnoses of these were made, until bitemporal hemianopsia, optic atrophy, severe headaches and vomiting, indicating enlargement of the hypophysis, developed. Unmistakable signs of acromegaly now manifested themselves. The diagnosis of a tumor of the hypophysis was verified by the *x*-ray findings. Menstruation had been irregular for over twelve years, but the flow was not diminished in amount. There had been no polyuria. No adiposity or change in the external genital characteristics had been noted. The technic employed in exposing the hypophysis has already been described by Dr. Halstead. After the fat surrounding the hypophysis had been removed a cyst-like mass with gelatinous contents, not unlike soft granulation tissue, was curetted away. The patient did not recover from the partial hypophysectomy. After the operation she presented a peculiar train of symptoms, which Dr. Hamburger has suggested may have been due to the rapid absorption of hypophyseal secretion. These symptoms had some features in common with those which so often follow partial thyroidectomies for the relief of Basedow's disease.

Microscopic Examination.—The tissues were fixed in Zenker's fluid, imbedded in paraffin and stained with neutral gentian, hematoxylin and eosin, copper-chrome-hematoxylin and Van Gieson's picro-fuchsin. In studying sections of the hypophysis in cases of acromegaly it is necessary to use fixing fluids which will preserve the granules, and stains which will differentiate them. Zenker's fluid gives very satisfactory results, as the chrome salt gives the best results with neutral gentian technic.

Iron-hematoxylin, copper-chrome-hematoxylin and Bensley's mitochondria stain—give good results after fixation in Zenker's fluid. The importance of fixing the granules and of using stains which differentiate them cannot be insisted on too strongly. Hypophyseal cells when proliferating tend to reproduce the structure of a sarcoma and mistakes in anatomic diagnosis have often been made because of the failure to use fixatives and stains which preserve and differentiate the granules. Benda[9] was the first to call attention to the possibility of interpreting a hyperplasia or an adenoma of the hypophysis as a sarcoma. Mendel then reexamined some cases which had been regarded by him as sarcomas and when granule stains were employed he could demonstrate the granules peculiar to the cells of the anterior lobe of the hypophysis, thus confirming Benda's view.

The histologic appearance of the tissue from this case differs in the various fields. In some, the cell columns are cut parallel to their long axes and appear as long strands between a rather heavy fibrous tissue. The cells appear to be normal and their arrangement does not differ from that usually found in the gland. In other fields the connective tissue between the cell columns is markedly reduced in amount, the cell masses being larger than is normally the case and separated from each other by delicate strands of connective tissue, the histologic picture indicating fusion of adjacent cell columns. In these areas karyokinetic figures are quite frequently encountered in

8. Cushing, H.: The Functions of the Pituitary Body, Am. Jour. Med. Sc., 1910, cxxxix, 473.

9. Benda: Deutsch. med. Wchnschr., 1901, xxiii, 536.

the cells, karyokinesis being most active in the cells with a light brown cytoplasm with few granules, as they appear in copper chrome preparation.

The fusion in some fields becomes so marked that large cell masses without definite boundaries are formed. The histologic picture is that of hyperplasia ending in adenoma formation. I have attempted to determine whether the chromophobe or chromophile cells predominate. So many transitional phases are present that it is impossible to determine accurately the relative proportions of the different cells. Eosinophil cells predominate in the field represented in Figure 2. It is difficult to estimate the relative proportion of the different cellular elements in all of the fields. None of the large vesicular type of cell, largely free from granules, which Cushing is inclined to believe represents the active or at least discharged phase of the gland, is present.

Notwithstanding the number of articles which have appeared dealing with the relation existing between tumors of the hypophysis and acromegaly, there is still considerable diversity of opinion regarding it. Cagnetto[10] believes that acromegaly is not the result of hypophyseal changes, but that the latter are the result of some obscure general disease. In support of this view he cites the following observations: 1. Cases of acromegaly have been observed without a tumor of the hypophysis. 2. Adenomas composed entirely of chromophobe elements but associated with acromegaly have been found. 3. Adenomas composed entirely of chromophil elements (regarded by many as the actively secreting cells of the glands), without acromegaly have been observed.

Those cases in which no changes have been found in acromegaly are open to doubt, for in some instances a careful histologic examination has not been made, and besides the possibility of a *Rachendach* or pharyngeal hypophysis has been overlooked. Haberfeld's[11] observations in this connection are exceedingly important. He has found almost constantly in patients of advanced age hypophyseal tissue in the vault of the pharynx, which is not to be regarded as embryonal rests which have undergone partial regressive changes, but as active hypophyseal tissue which is able to perform a function similar to the gland occupying the sella. Those cases in which no changes in the hypophysis have been described cannot be used as an argument against the hypophyseal origin of the disease, for even in the cases in which a careful histologic examination has revealed no changes a search for and examination of the pharyngeal hypophysis have not been made.

Our knowledge concerning the functional stages of the different cellular elements of the hypophysis is still imperfect. I believe that the histologic evidence favors the theory that the different cells of the anterior lobe are functional stages of each other and that the eosinophil elements represent the most actively functioning type. It is difficult to determine this, however, as it is practically impossible to exhaust the gland by repeated pilocarpin injections—a method which has yielded such good results in the study of the functional stages of glands with an external secretion. I attempted some five years ago to exhaust the cells of the anterior lobe by repeated pilocarpin injections without success.

Cagnetto and Modena have reported cases of acromegaly in which adenomas of the hypophysis were found, which were composed entirely of chromophobe elements, which are regarded by many as the least actively functioning cells of the gland. It is difficult to determine what effect such a growth may have on the remaining cells of such a gland as the hypophysis. The similarity between hypophyseal and thyroid changes have been emphasized for some time. Hyperthyroidism may be associated with cystadenomas and even chondromas, and although actively functioning cells are not found in the tumors the symptoms subside when the growth is removed. The same relation may exist between an adenoma of the hypophysis composed entirely of chromophobe elements and acromegaly as may exist between fetal adenomas of the thyroid and hyperthyroidism. Zak has reported a tumor of the hypophysis occurring in a patient 52 years of age, which was composed almost entirely of eosinophil elements but was unassociated with acromegaly.

Creutzfeldt in a recent article dealing with lesions of the hypophysis gives the following statistics concerning the changes found in the hypophysis in 56 cases of acromegaly:

No. Cases.	Character of Lesion.	Per Cent.
5	Without hypophyseal changes or changes not mentioned	8.9
15	Sarcoma	26.7
12	Hyperplasia	21.4
8	Struma	14.2
12	Adenoma	21.4
4	No anatomic diagnosis	7.1

It will be seen from the above table that hyperplasia, struma or adenoma of the hypophysis was found in 57 per cent. of the cases of acromegaly. It is quite probable that most of the cases regarded as sarcoma were actually adenomas of the hypophysis, the possibilities of error in anatomic diagnosis having been previously discussed. It seems probable, then, that definite evidence of increased hypophyseal function can be found in about 83 per cent. of these cases of acromegaly. The constancy of hypophyseal changes and the frequency with which the same lesion is repeated cannot be overlooked in determining the etiologic relationship between hyperpituitarism and acromegaly. This relationship is still more strikingly emphasized by the improvement noted by Cushing and Hochenegg in acromegalic patients following partial hypophysectomy.

CONCLUSIONS

1. The most common tumor of the infundibulum is that developing from inclusions of the cranio-pharyngeal duct. These may be cystic or solid. They are more frequently associated with Fröhlich's syndrome than any other type of intracranial tumor.

2. The most common lesion of the hypophysis in cases of acromegaly is the struma or adenoma of the anterior lobe. In the early stages of the disease, the course having been interrupted by an intercurrent affection, a hyperplasia of the anterior lobe may be found.

3. In cases of acromegaly in which there is no enlargement of the hypophysis careful histologic examination as to the character of the cells should be made. In cases of acromegaly in which no gross or microscopic changes are found in the gland the examination should not be regarded as complete unless a careful search for and study of the pharyngeal hypophysis has been made.

4. Tumors developing from the pars intermedia are rare, but three cases being reported. Two of these gave rise to no symptoms, the tumor being discovered during routine post-mortem examinations. Cushing's patient died as the result of increased intracranial pressure. It

10. Cagnetto, G.: Neuer Beitrag z. Studium der Akromegalie mit besonderer Berücksichtigung der Frage nach der Zusammenhang der Akromegalie mit Hypophysen-Geschwülsten, Arch. f. path. Anat. u. Physiol. u. f. klin. Med., 1907, clxxxvii, 197.

11. Haberfeld, W.: Die Rachendach-Hypophyse; andere Hypophysengangrests u. deren Bedeutung f. die Path. (Beitr. z. path. Anat. u. z. allg. Path., 1909, lxiv, 133.

should be noted in this case that the patient was excessively obese.

5. It is probable that some of the tumors arising from the pars intermedia may have been regarded as peculiar types of adenoma or sarcoma.

6. Stains which differentiate granules should be used in examining all growths of the hypophysis in order that incorrect anatomic diagnosis may be avoided, for hypophyseal cells tend to reproduce the morphology of a sarcoma when proliferating. The specific granules will differentiate the hypophyseal cells from those of a sarcoma.

7. Failure to recognize the morphology of the different elements in the hypophysis and their relation to tumor formation accounts for much of the confusion concerning the relation of the gland to acromegaly.

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THE ESSENTIAL DIFFERENCES BETWEEN THE PHYSICAL FINDINGS IN CHILDHOOD AND ADULT LIFE

A CLINICAL AND ROENTGENOGRAPHIC STUDY*

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It has not been our purpose to compare seriatim all the physical findings of infancy and childhood with those in later life, as this would be both long and without advantage. This paper originated rather in the difficulty which we experienced and which has doubtless been duplicated by every diagnostician, in interpreting properly many of the physical findings of childhood, even in normal children. This interpretation of signs in childhood might be compared to those in adult life as the examination of a moving train is to the examination of one stationary. There can be no permanency at any stage of the child's development; there can be no entirely definite and satisfactory standard at any age; there can, indeed, be no certainty of what constitutes the norm in a child, as the abnormal is so frequent and the differentiation so delicate.

It would seem that, with such unlimited material in the hands of nearly every practitioner of medicine, with such abundant opportunities for observation, there would be at this time little difference of opinion in regard to many signs in childhood. Yet this is not true. The ideal method of acquiring skill and accuracy in physical diagnosis is by the checking up process of the autopsy table, but this is unfortunate in that it has to do with pathologic conditions. The acquisition of accuracy in physical diagnosis cannot possibly come from observation of others, reading, or lectures, but must be obtained by the individual on the living body. The autopsy control is clearly impossible to the vast majority and, for the reason above mentioned, not entirely satisfactory to the remaining small minority.

The replacement of this control in diagnosis on the unhealthy dead by another control on the healthy living is made possible with the Roentgen examination, a means that we have used with much satisfaction. The Roentgen ray can never be a substitute for the eye and the hand and the ear, because it is too often unavailable at the time needed, because it is impossible for poor patients in their homes, and for other very obvious reasons. All of the Roentgen work in this connection has been done by one of us. It has been our aim to check up the physical findings, especially percussion findings, with the Roentgen ray and to pay especial attention to a number of points concerning which there is still much discussion and uncertainty.

EXAMINATION OF THE CHEST

The roentgenographic examination of the thorax in infants is difficult. This is particularly true with the orthodiagraphic method. Fortunately, improvements in apparatus and technic allow young children to be examined by means of the teleoroentgenographic method with accuracy and dispatch. This has been the method utilized by us. In order to make the exposures within the time limit necessary to secure good results, a tube distance of 1 meter was adopted. Observations made by us showed that, with children at the ages studied (under 12 years), this distance allowed more accuracy than a distance of 2 meters in adults, a distance which has been generally accepted and proved of such accuracy as to replace the orthodiagraph in routine work. All children old enough to stand upright were examined in this position with face to the plate. This method reduces the apparent enlargement of the heart and great vessels to a minimum, so that it can be virtually disregarded. Seventy children under the age of 12 have been studied by us with this method. Our material has been derived from the St. Vincent Orphanage, the Toledo Juvenile Home, and the private practice of each of us.

The general points of difference in the thorax of childhood and adult life are at once distinctive. The younger the child, the greater is the distinction. The shape of the thorax in the new-born is obtusely conical, with the greatest circumference at the base. The circumference decreases gradually toward the upper aperture, but not with a cone-like regularity. The antero-posterior diameter at birth is practically that of the transverse dimension. This cylinder-like chest has a direct bearing on certain physical findings, especially cardiac, to be touched on at another point. The figures of Rauchfuss show that these dimensions change with some constancy as development progresses. The ratio of the antero-posterior diameter to the transverse is as 14 to 18 at the sixth year and as 14.5 to 20 at the twelfth. The sternum in childhood shows a marked difference in position relative to the vertebral column. It may be fully two vertebræ higher in early life, with a corresponding rise of the anterior border of the upper thoracic aperture, with the result that this aperture lies in a more nearly horizontal plane.

The ribs in childhood vary distinctively from their position in after-life. It is this fact which is responsible for the error incurred in considering ribs and interspaces as landmarks comparable to those of adult life. In childhood the projection of the ribs from the spinal column is transverse rather than the oblique direction of later life. A given point on the thoracic wall in childhood would not correspond to a similar point in adult life measured in terms of spinal vertebræ, which is our most fixed and stable means of comparison. The ribs not only project more transversely at

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their beginning, but continue around the chest without the downward inclination of adult life, resulting in a chest contour resembling the adult chest at the height of inspiration. The transverse direction of the ribs allows more room for the lungs posteriorly and this fact is not without significance in the interpretation of signs under the sternum, where the anterior lung borders constitute a factor. The epigastric angle in consequence of the horizontally placed ribs is, of course, more obtuse than in adult life.

The examination of the chest in childhood is all too frequently by auscultation alone. This is due to the difficulty of obtaining satisfactory results from percussion. The great number of methods recommended for accurately outlining the thoracic organ borders attest the more or less unsatisfactory nature of most of them. There is a practical unanimity of belief in the greater advantage of light over strong percussion, but a considerable difference of opinion as to the degree of lightness. Strong percussion will not uncommonly produce a tense, involuntary, muscular contraction, which tends to cloud the actual note of the underlying structures. Hein showed by his experiments that with light percussion he could demonstrate the presence of airless organs through layers of lung tissue up to 7 cm. thick. In reality, the edges of the lung which cover the heart in children never reach this thickness.

It is not at all probable that one will percuss too lightly in children, so the care should be taken in the other direction. That form of percussion known as Goldscheider's or "threshold percussion" is peculiarly adapted to children. Here the lightest stroke possible is employed and the note produced is at the extreme limit of audibility. The percussion stroke by this method does not disturb tissue structures except under the percussing finger. No one can be sure that the tone produced by ordinary percussion is not a transmitted one or is influenced by adjacent organs or structures. Ideal conditions of quietness are absolutely essential in order to hear and to interpret properly a note at the extreme limit of audibility. Practically such a degree of quietness is not always attainable and to use Goldscheider's method under other conditions means failure. It is difficult to understand from purely theoretical reasons Goldscheider's statement that by this method only the axial waves produced in the direction of the finger stroke are perceived, and that all divergent, radiating waves are imperceptible.

The vibrations produced by a percussion stroke of the body wall, the underlying tissues, and contained air does not extend only along one line and that a prolongation of the axis of the percussing finger, but radiates in all directions. Any area of resonance or tympany that is reached by these centrifugal lines of vibration may mask, cloud or disturb a non-resonant note produced immediately under the percussing finger. It is on account of this fact that we should tend to percuss a point rather than an area. In order to do this, the smaller the pleximeter area in contact with the body wall, the greater is the likelihood that the note produced will be from the point or area in question and will not include a transmitted sound. The Plesch method of percussing on the terminal phalanx of the finger is good theoretically, if it does not involve an unnatural over-extension of the terminal interphalangeal joint, resulting in an uncomfortable and difficult position. It happens, not uncommonly, that such a method of percussing cannot be carried out without lavishing such a degree of attention on the art of percussion *per se*, that the interpretation will seriously suffer thereby. The technic of percussion becomes to all good diagnosticians, a second nature, and one should be entirely unconscious of the stroke, giving his entire attention to the note produced and the degree of resistance encountered. It is questionable if one who has to weigh the individual percussion stroke can interpret the note accurately. The average clinician learns his percussion technic on adults and neglects, or is unable, to change to another method; it is necessary that one should change with children, and still be unconscious of the change.

It is very doubtful if a single method of percussion is applicable to every one. Certainly, different clinicians get equally good results with different methods. Other things being equal, the smaller the pleximeter finger area is in contact with the body wall in children, the better. This is true, especially in children, because of the greater vibration than in the adult from a blow of equal force. There are a number of factors concerned in this—the thinness of the chest wall, the absence of complete ossification in the costal cartilages, and the greater delicateness of the bony framework. We have found that in extending the last two phalanges of the pleximeter finger on the body wall, it is possible to exert the greatest pressure, comparatively speaking, directly under the terminal interphalangeal joint and still to allow the finger to rest lightly in contact with the body wall. This preserves the natural finger position and has been found satisfactory.

There are many points of difference in gross anatomy between childhood and adult life, which have a direct bearing on the differences in the physical signs. The incomplete development of the heart and lungs, the greater relative size of the thymus, the different position of the diaphragm, the differences in the thoracic wall, all have their influence on the diagnostic findings.

EXAMINATION OF THE THYMUS

The thymus gland is a structure producing in infancy and childhood physical signs which are essentially different from those in adult life. This is an instance in which these differences are due to a complete or almost complete obliteration of an anatomic structure in the change from childhood to adolescence. There has been an interesting difference of opinion among anatomists concerning the thymus, which is well illustrated by the extremes of size given, varying from 2.0 gm. to 31 gm., a variation that is difficult to harmonize with normal body differences. A partial explanation at least may be found in the inability of anatomists to secure normal infants for anatomic measurements. The thymus mirrors or reflects in considerable degree the general nutrition of the child. Poorly nourished children, or those dying after prolonged infections or wasting diseases usually show a small thymus. Friedleben gives the following figures of average thymus weights:

Weight at birth	14.3 gm.
1 to 9 months	20.7 gm.
9 to 24 months	27.3 gm.
2 to 14 years	27.0 gm.
15 to 25 years	22.1 gm.
25 to 35 years	3.1 gm.

The examination of the thymus for physical signs is difficult and very often unsatisfactory. Inspection does not show anything and palpation shows but little. Auscultatory help is questionable and our methods fall back on percussion alone. The dulness produced by the

thymus has never been in our experience more than a slight diminution of resonance. The demarcation of borders is very unsatisfactory when the percussion note is not distinctly dull. The differentation of this diminished resonance is peculiarly difficult on account of the close association and relation with the sternum, great vessels of the thorax and occasional enlarged bronchial glands. Typical cases show, according to Blumenreich, an area of diminished resonance that is roughly triangular, with blunted angles. The base of this triangle is a line drawn between the lower edges of the clavicular extremities. The tip of the triangle lies on the sternum on or more often below the angle of Louis. Lines drawn slightly convex outward, which connect the extremities of the base line with the apex, will map out the lateral edges of diminished resonance. These lateral lines, however, are not symmetrical. The left edge of diminished resonance usually projects considerably over the left sternum border, but not so on the right. A large thymus manifests itself by an extension of the area of diminished resonance downward and to the left rather than to the right. This enlarged area tends to merge with dulness produced by the heart and great vessels.

We have given especial attention to the thymus in our roentgenographic work. Basing conclusions on our seventy examined cases, we believe that reports of other investigators that it is possible to determine the normal thymus shadow by the use of the Roentgen rays, are erroneous. Hochsinger states that "the middle shadow thrown by the thymus under normal conditions rests on the shadow thrown by the heart, just as the slender neck of a bottle is fixed on the body of the bottle." This bottle-neck shadow, due to the thymus and heart, has come to be a sort of fixture in medical literature, mainly by reiteration and quotation. The roentgenographs published by Hochsinger are far from conclusive. It is to be remembered that the thymus shadow from its anatomic location merges with the shadow produced by the sternum, spinal column, and particularly with the great thoracic vessels. A definite enlargement of the thymus could not be differentiated accurately unless the thymus enlargement extended laterally beyond the great vessels, which is improbable in consideration of the great relative width of these structures in childhood. Anatomic studies have, but uncommonly, shown such a degree of hyperplasia. Furthermore, it is entirely probable that a thymus enlargement may extend antero-posteriorly, rather than laterally, rendering the delineation still more difficult.

A broadening of the shadow above the heart is much more probably due to the thoracic vessels than to an hyperplastic thymus. We have not been able to demonstrate this broadened shadow above the heart, even in cases which gave strong clinical evidence of hyperplasia of the thymus. This has also been the experience of Lange in four cases, in which thymus enlargement was definitely diagnosed clinically.

EXAMINATION OF HEART

The heart in childhood is situated nearer the sternum than in adults, and in the developmental change from childhood to adolescence, there is a gradual displacement to the adult position. This situation near the sternum contracts the retrosternal space between the sternum and the anterior layer of the pericardium. The heart is held in this position by the shorter and tighter inferior and superior sternopericardiac ligaments. This space can be demonstrated distinctly with the Roentgen ray in lateral views. The more transverse or horizontal position of the heart in childhood results in distinct differences in percussion boundaries. In relation to the bony structures, the heart occupies a higher position due to the higher situation of the liver, the position of the diaphragm, the shorter and broader great thoracic vessels. The attachment of the child's heart to adjacent structures is less firm, resulting in greater mobility and easier displacement. The size of the child's heart is relatively large. This is likewise true of the great arteries of the thorax. The heart and the arterial tree gradually decrease in relation to the body weight as the child passes on to adolescence. Baginsky states that the ratio between the heart volume and lumen of the aorta ascendens is as 25 to 20 in the child, 140 to 50 preceding puberty, and 290 to 61 immediately following puberty, during which latter time the heart increases in weight markedly. Anatomists are agreed that the growth and development of the heart occur in an irregular manner. Two points are generally conceded, namely, that the size of the heart is large in relation to the body weight during the first year of life and again at puberty. Von Dusch asserts, however, that in addition to these periods, there is another period of growth from the third to the seventh year, during which the heart becomes again relatively large. Vierordt states (quoted from Hochsinger) that the heart weight is 0.89 per cent. of the body weight during infancy, but only 0.52 per cent. during adult life. The marked difference between the thickness of the ventricular chambers and the heart weight is important anatomically, but does not influence the physical findings as much as the ratio between the size of the great vessels at the base and the heart. This relatively large volume of the great vessels has its bearings on the percussion borders of the heart, and likewise on the differentiation of the heart, great vessels and thymus from one another with the Roentgen ray.

There are a number of factors which make the percussion of the child's heart a difficult procedure. One cannot fairly compare the cardiac percussion dulness in the child with that in the adult. The changed position of the heart in early life, its more horizontal and higher situation results in a different standard of comparison, even after the relative differences in the size of the body has been taken into consideration. This altered situation of the heart brings the right edge of dulness further to the right, a fact which is often ascribed to a disproportion in size between body and heart in childhood. There are particular reasons which make the determination of each heart border peculiarly difficult in the child. The upper heart border has to be demarcated from the great vessels of the thorax, which in the child are relatively large in size and volume, from enlarged bronchial glands, an enlarged thymus, and the dull area described by Hamill. The left cardiac border is difficult of determination for two reasons chiefly. There is a tendency, fixed naturally and by habit, to percuss out the left heart border in children, as well as in adults, with a percussion stroke having its axis perpendicular to the body wall. The more or less circular or cylindrical shape of the child's chest results in a considerable degree of distortion of the cardiac outline, which can be obviated by making the percussion stroke for the left border parallel to that for the right border, regardless of our tendency to percuss at the right angle to the body surface. An impairment of

the note along the left edge of the heart, especially along the lower part, may result from gastric or intestinal dilatation, even when it is not apparent. The right border of the heart is peculiarly difficult to map out, because the higher position of the liver on the right side may influence the normal resonance of the lower right front. Two other factors influence the position of the right border, the diminished resonance normally obtained over the sternum and, secondly, what we believe to be an actual slight degree of normal variation, due to the greater and freer mobility of the child's heart.

There is a considerable difference of opinion as to the advisability of attempting to percuss out the superficial heart dulness or the actual size of the heart. In adults, the percussion of the actual borders of the heart is so difficult that it is not ordinarily attempted. In children, better results can be obtained with the actual heart borders. This does not imply that the determination of the size of the heart in children is easy, either relatively or absolutely. On the contrary, the reverse is true, and to map out the heart percussion borders accurately is truly a difficult procedure. We know from the numerous experiments of Oestreich on the cadaver that the superficial heart dulness in adults can be determined with great accuracy. Superficial dulness maps out simply the lung borders and not at all the shape or size of the heart. It is stated by Mayer and Milchner that there is often a moderate degree of emphysema of the lung edges in young children, which may lead to erroneous conclusions. There are many more objections against the superficial dulness in children than in adults. There are greater numbers of functional disturbances and constitutional anomalies affecting the child's heart than the adult and the superficial dulness helps in no way, or at least but slightly, to determine these. Such disturbances of childhood, which have been described, are the so-called adenoid heart, the *cœur de croissance* of Germain, the relatively small heart of Bouchard, the heart of the narrow-chested of Kraus (*Herz der Engbrustigen*), the constitutionally weak heart of Martius, the dilatative heart weakness of Neumann, and functional disturbances after acute infections.

There are still more important reasons for determining the actual heart size in children. In adult life that part of the heart covered by the chest wall area from the fourth to the sixth costal cartilage and rib is fixed, determined and stable. In childhood this area is changing with the body development, but not with a definite rate of progression. It is impossible at any given age to tell how far the superficial heart dulness is due to the heart itself, or to natural changes of development, which are continually occurring. Likewise, in adults, the relationship between heart and the great vessels, thorax, and mediastinum, are fixed and definite. Not so, however, in childhood, as the bony thorax is constantly developing by a chondro-epiphyseal growth which widens the thorax and, as a result, any bony landmark used to express heart size in children is indefinite and variable.

It is because of this lack of definitely fixed bony landmarks that we should use actual figures of measurement for describing heart borders rather than the relation to a certain variable rib or arbitrarily drawn line. This is true particularly of the lateral borders, if not of the upper. This is one of the points which we desire to emphasize most strongly, and the lack of such custom has, in our opinion, been one of the causes for the present great difference of opinion concerning heart borders in children. A mapped-out area of cardiac dulness expressed in centimeters from the fixed mid-sternum, a line not subject to variations due to irregular and varying degrees of growth, expresses the heart size without equivocation or possibility of misinterpretation. Sahli's measurements in terms of relation to ribs and nipples may be taken as average boundaries. He gives the superficial area of dulness as follows: above, the upper border of the third interspace; left border, a line drawn between the parasternal and mammary line; right border, the left border of the sternum. The deep heart borders are as follows: above, the second interspace or the lower border of the second costal cartilage; left border, at or beyond the mammary line; right border, at the right of the parasternal line or beyond. These borders are for children, not infants or very young children. Expressed in centimeters, Sahli's figures are as follows:

Age.	Widest diameter.	Right.	Left.
2 to 6 years....	10.5 cm.	3 cm.	7.5 cm.
7 to 12 years....	11.5 cm.	3 cm.	7.5 cm.

Troitzky, summing up various measurements, arrives at the following averages. He has, however, taken the width of dulness at the upper part of the sternum and not at the level of the nipples.

Age.	Width.	Right.	Left.
2 to 6 years....	7.5 cm.	2.5 cm.	5.0 cm
7 to 12 years....	9.0 cm.	3.0 cm.	6.0 cm.

This shows the lack of uniformity, a desideratum which is much to be desired, if the average clinician or general practitioner is to have recourse to an accepted standard.

Reyher's figures with the orthodiagraph are as follows:

Age.	Width.	Right.	Left.
2 to 6 years....	8.2 cm.	3.0 cm.	5.5 cm.
7 to 12 years....	11.1 cm.	3.5 cm.	7.6 cm.

In the seventy cases which we have rayed by the teleoroentgenographic method in heart measurements in centimeters were as follows:

Age.	Width.	Right.	Left.	Distance to left of median line of broadest vessel shadow.
3 months	5.4	2	3.4	3.0
2 to 6 years....	7.0	2.5	4.5	3.0
7 to 10 years....	9.5	3.5	6.0	4.0
11 to 12 years....	10.5	3.5	7.0	4.0

It has not been possible for us to compare the roentgenographic measurements of each of these cases with the measurements obtained by heart percussion, but the average figures obtained by us show that our greatest percussion error has been in determining the breadth of the great vessels of the thorax. The right and left borders of the heart can be determined quite accurately by percussion as checked up by the Roentgen examination. The greatest source of error in determining the left border can be overcome, if the axis of the percussion stroke is kept parallel with the axis of the right border percussion stroke and is not made at right angles to the body wall. These figures show what is rather unexpected and surprising, namely, that it is the right border in children that is most accurately demarcated by physical diagnosis and not the left.

EXAMINATION OF LUNG

It is very desirable that one should have a clear understanding of the factors underlying lung percussion sounds, if their interpretation is to be accurate. There is still some difference of opinion concerning the

part played by the thoracic wall in the percussion sound. It is not to be denied that the vibration of the thoracic wall constitutes at least a partial factor of the lung sound. The difference in flexibility and elasticity between the child's thoracic wall and that of the adult accounts in large measure for the normal difference in sound in childhood and adult life. The other factor, the vibration of the bronchial air column, is not subjected to so much difference at the two periods in life, except in the amount of air and the size of the column. If the sound were proportional to the amount of vibrating air alone, with modification by other factors, there would be greater resonance in adult life than in childhood, which is not the case. On the other hand, the great influence of the thoracic wall factor is shown by the change of note in the child when the lateral lying-position is assumed and the chest wall is in contact with the bed. The resultant diminution of thoracic wall vibrations produces a distinct dulling of the percussion note. The same great flexibility and elasticity of the thoracic wall in childhood explains the less resonant percussion note at the end of deep inspiration in children old enough to breathe as directed. Full lung expansion increases the tension of the chest wall, lessens its elasticity and vibratory power, and, nothwithstanding the greater amount of air in the lung at the height of inspiration, it is not great enough to counterbalance the diminution in chest wall vibration.

The normal lung sounds in childhood vary from those in adult life, even in other respects than the degree. Posteriorly, the percussion sound in childhood is more resonant than in adult life. This is due to several factors, including the more posterior position of the lung in childhood, relatively speaking. There is a greater volume of air-containing lung tissue nearer the surface of the dorsal body wall. It follows from this that the anterior edges of the lungs should be further separated, relatively, than in adults and this is the case. This is likewise one of the anatomic facts explaining the greater exposure of superficial heart dulness in children. Laterally, the thoracic resonance approaches that obtained over the infraclavicular region anteriorly, until one passes below the sixth rib.

The area of dulness under the inner third of the left clavicle, described by Hamill, has been carefully looked for in every case examined by us, and especial attention has been paid to this area on *x*-ray plates. Hamill states that, contrary to text-book teaching, it is the left and not the right front which shows a relative impairment of resonance. This area of dulness is indefinite in shape and size, but is to be found, according to Hamill, "beneath the inner third of the clavicle, which (area) sometimes extends outward to the mid-clavicular line, and always downward until it fades into the cardiac dulness." This area of dulness is "constantly present up to the age of 9 or 10 years." Hamill does not give an entirely satisfactory reason for this area of relative dulness, but believes it has to do with the more posterior position of the lungs in childhood and the more exposed condition of the large thoracic vessels. It has not been possible for us to determine this area of dulness as described. We have encountered impaired resonance over this region, but not with sufficient regularity and certainty to consider it a normal condition. According to the studies of Blumenreich mentioned above, there is an asymmetrical area of impaired resonance, reaching farther to the left than to the right, but only up to the sixth year. The location of that part of the thymus dulness to the left of the sternum and under the inner end of the clavicle corresponds to a part of the area described by Hamill, although it does not extend outward or downward so far. Again, the more posterior position of the lungs in childhood applies equally to both sides, and the measurements by Feer show that at the age of 4 to 5 the right chest circumference exceeds the left by as much as 1.5 cm. The possibility of enlarged bronchial glands necessitating a differentiation will be touched on below. It is our belief, after a careful investigation of this point, that there is no normal impaired resonance directly under the left clavicle. It has been our experience, however, that dulness from the heart and great vessels rises to the upper edge of the left second costal cartilage in young children, and that between this point and the clavicle there is an area, which, while normally resonant to the lightest percussion, may appear relatively impaired in resonance, if the percussion stroke is at all strong. The high position of dulness at the second left costal cartilage in young children is in full harmony with the results obtained with the Roentgen examination. Furthermore, in the area between the great vessels and the clavicle, the Roentgen examination has not revealed anything which could reasonably account for impaired resonance over this area. It is much to be desired that this observation of Hamill be further confirmed. It would seem that such an area of impaired resonance at such an accessible point would not have escaped general observation and acceptance. The diagnostic significance of relative dulness at this point is considerable and the differentiation from the various pathologic conditions that can cause such dulness is of sufficient importance to merit close observation by others.

EXAMINATION OF BRONCHIAL GLANDS

The great frequency of enlarged bronchial glands in childhood makes a trustworthy method of diagnosis very desirable. No method of physical diagnosis can compare with the Roentgen rays. The value of the hitherto described methods of diagnosis have been, as a rule, dependent on the size of the glandular mass. The anatomic landmarks of the bronchial glands are the lower end of the manubrium sterni anteriorly and the fifth dorsal vertebra posteriorly. Dulness or impaired resonance in this region would be therefore in the region of the thymus, the impaired resonance produced by the sternum, the great vessels of the thorax, and the area of Hamill. Localized patches of dulness in the second interspace suggests enlarged bronchial glands, and the tendency of this form of dulness is to extend transversely. It has been advised that attempts to demonstrate such patches of bronchial gland dulness should be made at the end of forced expiration. Curschman and Schlayer found dulness due to enlarged bronchial glands in adults, but this is certainly an uncommon finding. There have been a number of signs described to aid in the diagnosis of enlarged bronchial glands, but which have only a secondary value. Camp described relative dulness over the spinal processes of the fifth and sixth thoracic vertebræ. Petruschky's spinalgia is an area of tenderness between the shoulder-blades, but has not been found to be of great value. The better known sign described by Eustace Smith is not trustworthy. This sign consists in a venous hum audible over the manubrium during hyperextension of the neck. Thus, if the child in the erect posture bends the head backward so that the eyes look toward the ceil-

ing, the hum will appear in the positive cases, owing to the compression of the left innominate vein between the manubrium and the glandular mass. The great frequency of venous hums in children without glandular enlargement render the interpretation of this sign particularly difficult.

CONCLUSIONS

The following conclusions are drawn from this work:

1. The Roentgen examination affords an unexcelled method of controlling the results obtained by physical diagnosis.

2. The teleoroentgenographic method reduces the error by distortion to a negligible quantity and is well adapted to routine work.

3. The anatomic location of the normal thymus renders its differentiation by means of the Roentgen rays improbable.

4. The demarcation of heart-borders in terms of bony landmarks does not offer a fair comparison with adults, owing to the continual change in the development of the bony structures.

5. Absolute heart dulness in children can be quite accurately determined by very light percussion, and the results confirmed by the Roentgen rays.

6. The relatively great volume of the great thoracic vessels in young children offers the greatest difficulty in determining the size of the heart by physical methods only.

7. Extremely light percussion has not given us normal impaired resonance between the upper borders of the great vessels and the clavicle. The Roentgen examination has confirmed the absence of a density of tissue which would produce such dulness.

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ABSTRACT OF DISCUSSION

DR. FRANK SMITHIES, Ann Arbor, Mich.: From my experience in teaching physical diagnosis to medical students I have long felt the need of such a piece of work as this. The literature abounds in generalities. There is little said in the text-books or in monographs with respect to the findings spoken of. I was particularly interested in the roentgenographic findings in respect to the thymus. Three cases of thymus death have impressed on me the need of thorough physical examination of the child's thorax before such a simple operation as one on the tonsils or adenoids. In two cases the physician had entirely neglected the examination of the child's thorax except putting the stethoscope over the visible heart beat and saying that that organ was all right. Sometimes a radiograph will give admirable information in regard to the thymus, but it has been my experience that the thymus could be mapped out very readily in infants and in the newborn when the attempt is made. I urge on every one to make careful examination of the thorax before operating on children. The heart is infrequently examined and, where it is examined, unless done systematically, the findings are practically worthless. As to the findings in the mediastinal region, I think often anomalous conditions of the heart and blood-vessels can be traced to glandular conditions in the mediastinum.

Etiology of Intussusception.—H. J. Morganthaler states that the essential cause of intussusception is irregular peristalsis, particularly atony of one part with increased activity of adjoining parts of intestine. It may thus follow any limited, sudden, and severe peristalsis.—*Am. Jour. Obstet. and Dis. of Women and Children.*

PATHOLOGY AND BACTERIOLOGY OF ACUTE ANTERIOR POLIOMYELITIS *

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I. PATHOLOGY

A review of the literature shows records of about 100 autopsies on cases of poliomyelitis, nearly one-half of which were performed years after the acute attack.

Our studies include material from six autopsies performed on cases occurring in the Minnesota epidemic of 1909. In the article the cases are reported in detail.

The process as a whole follows a definite and specific course. Whatever may be finally shown to be the agent of infection, its "optimus locus" is in the perivascular lymph channels of the anterior portions of the cord, especially those located in the gray matter. From this site the reaction spreads on the one hand to the surrounding tissue spaces of the gray matter and on the other to the lymph channels of the white matter and pia, often involving the posterior portions of the cord.

CONCLUSIONS

1. Acute anterior poliomyelitis is a specific infectious disease characterized pathologically by general toxemia affecting the parenchyma of the heart, liver and kidneys and the lymphoid tissues of the body, but spending itself locally on the structures of the spinal cord.

2. Grossly the cord is congested and on transverse section shows softening and often hemorrhages in the gray matter of the anterior horns.

3. In the cord the infectious agent is located in the perivascular lymph channels of the anterior portions, especially invading the gray matter, but extending to the white matter and pia and occasionally the posterior horns. The brain stem and basal ganglia may be involved. In the cord the medulla and cervical and lumbar swellings are particularly affected.

4. The characteristic lesion consists of collections of cells in the perivascular and pial lymph channels and tissue spaces of the anterior horns. Of these cells the polymorphonuclear leukocytes appear early and are relatively few in number. They are soon displaced by endothelial cells arising from proliferation of the lining endothelium and lymphocytes coming from the blood and lymph streams.

5. Edema of the interstitial tissue and degeneration and destruction of the ganglion cells are always present.

6. The vessels are congested, their walls degenerated, and the capillary branches in the gray matter irregularly distended and often ruptured, giving hemorrhages, which always intensify markedly the amount of destruction. Thrombosis was not observed.

7. Early degeneration of nerve fibers from the anterior roots is a constant feature.

8. Stains for micro-organisms were uniformly negative.

II. BACTERIOLOGY

Specimens from twenty cases of poliomyelitis were examined by the laboratory division of the Minnesota State Board of Health during the 1909 epidemic.

The cultural and morphologic characteristics of Geirsvold's diplococcus were found to coincide with the description given by Drs. Fox and Rucker.

Geirsvold's diplococcus was found in purity in the spinal fluids from seven cases (two died, see Dr. Robertson's Cases 1 and 3), and also in cultures from the blood, mouth, lung, spleen, kidney, middle ear and brain substance of Case 3.

The tests to determine the pathogenicity of these pure cultures confirmed the opinion of other observers that Geirsvold's diplococcus is not a causative factor in poliomyelitis.

* Authors' abstract of a paper read before the Sections on Nervous and Mental Diseases and on Pathology and Physiology of the American Medical Association, St. Louis, 1910. The complete article will appear in the Transactions of the Sections and in the Archives of Internal Medicine.

The spinal cords of thirty-eight animals experimentally infected failed to show specific lesions of poliomyelitis though in some animals motor disturbances developed which might have been mistaken for the symptoms of poliomyelitis. The presence of specific lesions was regarded as the crucial test.

We believe that symptoms of inoculated animals must be supported by pathologic findings to have any value as experimental evidence.

THE SURGICAL TREATMENT OF INFANTILE SPINAL PARALYSIS *

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To one who thoroughly appreciates the pathology of anterior poliomyelitis the surgical treatment of the chronic stage of this affection yields satisfactory and gratifying results. A certain amount of irreparable damage has been done the spinal cord, in consequence of which the muscular power of the affected part has been correspondingly diminished. One may not hope to restore such a member to its normal condition; one may hope, however, to overcome deforming tendencies resulting from loss of muscular balance and to establish conditions such as will enable the part to functionate in the most efficient manner permitted by the existing degree of paralysis.

OBJECTS OF OPERATION

The objects of operation in this affection are two:

1. Improvement of form in the deformed member (by forcible correction, tenotomy, fasciotomy, myotomy, osteotomy, wedge-shaped excision of bone, and bone excavation).
2. Improvement of function in the non-deformed, or corrected, member.

A. Through restoration of power to the paralyzed muscle (by nerve anastomosis).

B. Through restoration of muscle balance (by muscle and tendon grafting and transplantation).

C. Through securing greater stability in the paralyzed member (by arthrodesis, astragalectomy, silk ligaments, tenodesis, fasciodesis, and removal of skin flaps).

I. IMPROVEMENT OF FORM IN THE DEFORMED MEMBER

It is a deplorable fact that, while deformity is generally conceded to be, as a rule, preventable by the early, proper and persistent use of passive motion and retention apparatus, the majority of patients consulting the orthopedic surgeon for this affection present malpositions of greater or less degree.

Deformity is most complex in its causation. One of the most essential factors is loss of muscle-balance resulting from unequal distribution of paralysis; it is well recognized clinically that a generally affected part may retain an approximately normal form, while paralysis of a single muscle or group of muscles, as, for example, the peroneals, may give rise to a severe malposition. To this loss of balance, which through unapposed muscular action permits of gradual lengthening of the affected and shortening of the unaffected muscles, are added the effects of gravity, of habitual posture and of functional use; finally structural adaptation takes place, fixing the part in the deformed position. When a malposition has been allowed to persist for some time, whether structural adaptation has taken place or not, a new factor, of great importance in the proper estimation of the degree of the paralysis, is added: this is the overstretching of the weakened muscular tissue. That damaged nerve cells may recover sufficiently to functionate, but in the meantime the affected muscles become incapacitated by overstretching and atrophy from disuse, is a fact[1] which, though well known to specialists, does not seem to be recognized by the mass of the profession and which certainly is very frequently disregarded by all in judging the results of operative measures. It is impossible by any tests at our command to judge accurately of the power of such overstretched muscles[2]; only by maintaining them in a position of maximum relaxation for a sufficient time to permit retraction to take place can we be definitely certain of their condition. Hence, any operation for the correction of deformity necessarily includes long-continued retention in an overcorrected position, and this, furthermore, must obviously precede measures for the improvement of function.

For any cases which have proved intractable to passive motion and mechanical measures a variety of surgical procedures—forcible correction, division of muscles, tendons, ligaments and fasciæ, and operations on the bones—are at our disposal, the choice of which will vary according to the mechanical conditions to be met, a combination of the various procedures being, as a rule, required.

Forcible Correction.—Forcible correction, performed manually or with the aid of various forms of apparatus, yields a uniform stretching of all contracted soft parts, permits the lengthening of deep-lying structures not readily accessible to the knife, and restores the muscle belly to its former length, instead of causing a further shortening and so a further decrease in excursion, as does simple division. With increase in the amount of force used, however, there is increasing danger of injury to soft parts and bones; moreover, under certain conditions one deformity may be increased while another is being corrected. One example of this will suffice: Given a case of talipes equinovarus, any amount of force applied to the sole can have no other than a beneficial effect on the contour of the foot, while in talipes equinovalgus, on the contrary, the force used to correct the equinus will necessarily tend to increase the valgus; hence, in this instance, operative lengthening of the tendo Achillis would be preferred.

Tenotomy.—While subcutaneous tenotomy after the original method of Stromeyer, when practiced in suitable cases, ordinarily yields entirely satisfactory results, yet in infantile spinal paralysis there are certain considerations which favor the choice of other methods. In stating these considerations the tendo Achillis only will be mentioned, as it is the one most frequently requiring division.

Simple tenotomy does not permit control of the extent to which the tendon is lengthened, yet this is a matter of considerable moment, for the strength of a muscle depends very largely on its tension, its strength being markedly decreased when the normal tension is lost, since a certain amount of force must be expended in restoring normal tension before joint movement can take place. Hence, in cases of corrected paralytic talipes equinus in which the tendo Achillis has been divided by the old method, it is not uncommon to find the power

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Silver, David: Paralysis of the Shoulder, Am. Jour. Orthop. Surg., November, 1908.
2. Tubby, A. H.: Recent Surgical Methods in the Treatment of Certain Forms of Paralysis, Brit. Med. Jour., March 1, 1906.

of plantar flexion much diminished, so that the patients are unable for months or even years to stand on the toes.[3] In an analysis of eighteen paralytic cases in which simple division of the tendo Achillis had been performed from three to eight years before, Hibbs[4] found serious modification of the function of the calf in eleven; he attributes this to the following factors: First, shortening as a result of the deformity; second, further shortening as a result of the tenotomy, and third, still further shortening from yielding of the bond of union between the divided ends. The control of the amount of lengthening is, therefore, advisable, and this may be secured through lengthening by the open method or by means of the subcutaneous method of Beyer.

Operations on the Bones.—Should bone changes have become so marked that forcible correction and division of soft parts are not sufficient to overcome deformity, this may still be accomplished through osteotomy, wedge-shaped excision, or bone excavation (Ogston's operation[5]).

While the procedures thus far discussed have for their primary object improvement of form, they necessarily contribute through this to improvement of function, and, when combined with the judicious use of apparatus and muscle development and training, will yield in many cases such satisfactory results that no further operative treatment will be indicated.

II. IMPROVEMENT OF FUNCTION IN THE NON-DEFORMED OR CORRECTED MEMBER

A. Through Restoration of Power to the Paralyzed Muscle (by Nerve Anastomosis)

The restoration of normal nerve impulses to the paralyzed muscle or muscles by means of nerve anastomosis would naturally be the operation of choice were it generally applicable to this affection. While the operation must still be regarded as in the experimental stage as regards anterior poliomyelitis, yet enough has been done to justify certain conclusions.

The operation has here evidently a more limited application than at first supposed. It is ten years since nerve anastomosis was first used in anterior poliomyelitis and five years since the subject was presented before this Association;[6] yet the successful cases available in literature are not numerous, in many, as is so often the case, the reports being made too early for the final results to be known. The reason for this limited field is to be found in the fact that the paralysis is rarely confined to a muscle group supplied by only one nerve-root or spinal segment, but is in the large majority of cases spread over several spinal segments, and so no nerve or nerve-root anastomosis can be beneficial. For a case to be suitable the lesion must affect an entire nerve-center, while other centers remain free.[7] Hence, cases in which the operation is indicated are undoubtedly fewer than previously considered.

While in the first burst of enthusiasm the procedure may seem to offer the possibility of ideal results, yet a study of the literature indicates that such is not the case. There is admittedly a certain danger of injury to the healthy nerve, and so, in the event of failure of the anastomosis, a danger that the condition following operation may be worse than that before; this may result from traumatism at the time of operation, failure of cut fibers to repair, or subsequent impairment from scar formation. Spitzy[8] admits that there is a loss in the power-giving nerve, but asserts that it is not permanent. Stoffel,[9] in operating for restoration of the deltoid chose for the power-giving nerve the branch to the middle head of the triceps, since this could be sacrificed in the event of failure without great loss. Results further fall short of the ideal in that complete restoration of power, so far at least, has not been the usual result; this may be due to choosing a nerve that has itself been slightly affected, to imperfect regeneration in the power-receiving nerve, to injury from scar formation, or to failure of the new center to learn its function.

Early operation offers the best chance of success; the longer the duration and the fewer the signs of life in the affected muscle, the less the chance of recovery, for the muscle finally becomes changed into a fibrous, fatty mass from which restitution to the highly organized nerve-muscle organ is no longer possible.[8] Four to six months, in some cases nine months, is usually given as the most favorable time, yet operation as early as this is open to the objection that the greatest possible degree of recovery has not yet been attained. Spitzy, perhaps the most ardent advocate of the procedure, admits that in a few cases recovery might have occurred without the anastomosis.

The newly developing function should encounter as little resistance as possible; hence overcorrection of deformity is a necessity, and this should be performed at a preliminary sitting for the reasons already stated. The combination of correction of deformity, lengthening and shortening of tendons, and even tendon grafting with nerve anastomosis at the same sitting, as has been reported, must be regarded as unscientific, since it is difficult under these circumstances to determine accurately to which procedure improvement is due; where nerve anastomosis is used tendon transplantation should be held in reserve as a secondary operation in the event of failure or of partial success of the anastomosis. As a further step in diminishing resistance to the returning function, alcoholization of the nerve-supply to the active opponents has been used by Allison and Schwab.

The upper extremity at present apparently offers the most promising field for nerve anastomosis. The hand, which on account of its highly differentiated function has not yielded such successful results after tendon transplantation as has the foot, seems for this same reason to offer more from a successful nerve anastomosis. At the shoulder, also, where there is no muscle capable of fully replacing the deltoid, conditions are admirable for anastomosis on account of the accessibility of the nerves, and a study of the reported cases shows that the operation in this region has given a relatively high degree of improvement.[9]

B. Through Restoration of Muscle Balance (by Muscle and Tendon Grafting or Transplantation)

The restoration of muscle balance by means of tendon and muscle grafting or transplantation has been so thoroughly tested that its efficacy in the treatment of the

3. Lange, F.: Joachimsthal's Handbuch der Orthop. Chir., 1905-1907.
4. Hibbs, R. A.: Subcutaneous Division of the Tendo Achillis, etc., New York Med. Jour., July 10, 1902.
5. Bartow, B.: Operative Remodelling of the Tarsus, etc., Am. Jour. Orthop. Surg., vii, No. 4.
6. Spiller, W. G., and Frazier, C. H.: Treatment of Acute Anterior Poliomyelitis by Nerve Transplantation, THE JOURNAL A. M. A., Jan. 21, 1905, p. 169.
7. Tubby, A. H.: Surgical Treatment of Infantile Paralysis, Brit. Med. Jour., Sept. 20, 1908 (Discussion).
8. Spitzy, H.: Fortschritte auf dem Gebiete der Chirurgie der peripheren Nerven, Wien. klin. Wchnschr., 1909, No. 46.
9. Stoffel, A.: Neue Gesichtspunkte auf dem Gebiete der Nerventransplantationen, Ztschr. f. orthop. Chir., 1910, xxv.

chronic stage of anterior poliomyelitis is to-day beyond question.

Tendon transplantation is no exception to the rule that every operative procedure has its limitations. In the beginning too much was expected of it. It brings no increase of power, except through subsequent muscular development; it merely permits the restoration of an important lost function at the expense of one or more less important ones, thus securing improved action in a part which is still a paralyzed one. If the paralysis be extensive the muscular tissue remaining will not be sufficient to ensure control after balance is restored; hence the method is obviously not applicable to cases of this character except when combined with other procedures.

In the early operations the use of slips of tendons often yielded nothing more than the benefit to be derived from their action as "additional ligaments," since independent action, without which there can be no restoration of function, was rarely obtained; moreover, relapse through gradual yielding of the bond of union or stretching of the weakened receiving tendon was common.[10] Not only have these causes of failure been overcome, but the usefulness of the method has been further extended through the transplantation of whole muscles or of parts of muscles readily divisable (triceps suræ, extensor digitorum, etc.), the use of silk extensions where the tendons are not of sufficient length, and insertion directly into the periosteum or bone at the most advantageous point.

The operative technic is comparatively simple and easily mastered by anyone acquainted with modern surgical methods, but the planning of the operation requires an intimate knowledge of the disease and an acquaintance with human mechanics which can be acquired only by special study. The lack of ability properly to determine the extent and the degree of the paralysis, definitely to estimate the amount of muscular tissue which must be transplanted in order to restore balance, and wisely to combine other operative procedures[11] with that of tendon transplantation, fully explain the failure of many surgeons to secure satisfactory results and make it certain that there will always be bad results.

The importance of an extended period of postoperative treatment, including especially protection of the transplanted tendon and careful muscle training,[12] has been so frequently emphasized that it needs no further mention.

As regards the adaptability of the operation to the various regions, the foot is preeminently the domain of tendon transplantation. Here the movements which are absolutely essential are few in number and relatively simple in character; of those required, plantar and dorsal flexion are of first importance, supination and pronation next, while control of the toes is not necessary in shoe-wearing people.[2] Hence, it will usually be possible, except where plantar flexion is lost, to secure a normally balanced foot; with lost plantar flexion, however, full restoration is impossible, since the combined strength of all the muscles on the back of the leg is only one-fourth that of the calf (gastrocnemius and soleus). Peroneal paralysis, one of the most common types, which gives rise to a talipes varus or equinovarus, is perhaps the most favorable condition in the foot for transplantation. In mild cases the extensor proprius hallucis may be transferred to the outer border of the foot, being attached to the cuboid; in marked cases, where the balance is more severely disturbed, the tibialis anticus may be used, if the posticus is normal; in this deformity weight-bearing is an aid in protection against relapse. Talipes valgus is not so favorable as varus on account of the greater power required for adduction and the deforming tendency of weight-bearing. In paralysis of the calf, transplantation alone will rarely do more than prevent a severe degree of calcaneus, but when combined with procedures which enable the muscles to act at a greater mechanical advantage excellent results are secured.[13]

At the knee the final results of substitution for the paralyzed quadriceps have been reported by Böcker,[14] as follows: Transplantation of the biceps and either the semitendinosus or semimembranosus, one flexor being left to prevent a genu recurvatum, gave the best results, almost normal extension with a good and steady gait being secured in most cases; the combination of the sartorius or the tensor vaginæ femoris with the semitendinosus or semimembranosus was less efficient, yielding only 100 to 130 degrees of active extension; the use of the sartorius or the tensor alone gave only moderate improvement, for, while it was possible for the patient to take a few steps on an even surface, apparatus was required for long distances.

In the region of the hip the results obtained by transplantation have so far been slight. Lange[15] has restored the power of abduction in complete paralysis of the gluteus medius and minimus by attaching the upper end of the vastus externus by means of silk strands, arranged in a fan-shaped manner, to the crest of the ilium; three out of four patients so treated were able to lift the leg when lying on the unaffected side, and the gait was greatly improved.

In the hand, where each muscle plays a definite part in the movements of precision here required, the restoration of any lost function can be purchased only at a high price; furthermore, independent action of the transplanted muscle is essential and a longer period of muscle training is required than is the case in the restoration of the coarser movements of the lower extremity. This is sufficient explanation of the lessened efficiency of transplantation in this region. Moreover, on account of the less frequent affection of the upper extremity (one to eight as compared with the upper), opportunity for working out the problems here involved is much less.

The chief attempt in the upper extremity has been to replace the paralyzed deltoid. The difficulties to be met consist, first, in the fact that the different portions of the deltoid have different functions, and, second, in the lack of sufficient muscular tissue for substitution. A portion of the trapezius, the muscle usually chosen, will obviously replace the action of only one part of the deltoid; when this is supplemented by a portion of the pectoralis major a better result may be obtained, but full replacement would seem to be an impossibility. While the operation, therefore, has resulted in considerable improvement, even in some cases enabling the patient to elevate the arm above the shoulder, it falls far short of full function.

10. Silver, David: Causes of Failure in Tendon Grafting, Pennsylvania Med. Jour., August, 1907 (References).
11. Whitman, R.: The Importance of Supplementing Tendon Transplantation in the Treatment of Paralytic Talipes by Other Procedures Designed to Assure Stability, Am. Jour. Orthop. Surg., August, 1903.
12. Lovett, R. W.: Treatment of Paralytic Deformities, Boston Med. and Surg. Jour., April 14, 1910 (Bibliography).
13. Whitman, R.: Further Observations on the Treatment of Paralytic Talipes Calcaneus by Astragalectomy, etc., Ann. Surg., February, 1908.
14. Böcker, W.: Endresultate der Sehnentransplantationen bei Quadricepslähmung, Arch. f. klin. Chir., 1909, xci, No. 1.
15. Lange, F.: Der plastische Ersatz der Glutaeus medius und minimus, Ztschr. f. orthop. Chir., 1906, xvii.

C. Through Securing Greater Stability in the Paralyzed Member (by Arthrodesis, Astragalectomy, Silk Ligaments, Tenodesis, Fasciodesis, Removal of Skin Flaps, etc.)

Arthrodesis.—When all the muscles controlling a joint are paralyzed, or in some instances in which the remaining power is not sufficient to ensure control, the operation of arthrodesis, in which the production of an artificial ankylosis is sought, is advisable in order to free the patient of all apparatus or permit the use of a less cumbersome form. Arthrodesis should never be considered until the use of those conservative measures known to be essential have been persisted in for a sufficient time to remove all doubt that the paralysis is permanent, nor should it ever be performed unless it is certain that the expected result will exceed the damage; that is, that the stiff joint will be a lesser evil than the flail joint.[16]

The adaptability of the various joints for the operation is in the order of ankle, knee, shoulder, hip, elbow, wrist; operation on the last two is seldom performed.

The operation is peculiarly suited to the ankle, on account of the character of its articulations and its weight-bearing function. It may be performed between the tibia and the astragalus alone, the usual procedure, or with this may be combined arthrodesis between the astragalus and the os calcis,[17] or at the mid-tarsus, the rigidity of the foot being thus varied according to the needs of the case. Bony ankylosis or strong fibrous union is necessary; the latter gives a more elastic foot but carries with it the danger of yielding under use. Operation on patients under 10 is not so likely to yield satisfactory ankylosis on account of the amount of cartilage present in the joints of those under this age.[18] When proper precautions are taken the number of failures is small, and results are both gratifying and permanent, the disadvantages being only those incident to the rigidity; that is, a lack of elasticity in the gait, some difficulty in walking on an uneven surface, and perhaps more early tire. In cases in which there is some muscle power left, but not enough to ensure control of the foot after transplantation alone, arthrodesis of one or the other joint may be combined with transplantation and will be of especial service where only fibrous ankylosis is secured.

At the knee pathologic ankylosis is so common that the advantages and the disadvantages of an arthrodesis of this joint will be apparent to all. The decision should be left to the patient; hence it is best not to perform the operation in children. The condition is so well controlled by apparatus which will permit bending of the knee in sitting that this will usually be preferred, except in the very poor. Where both sides are affected, arthrodesis of one knee only is indicated.

While arthrodesis of the hip is not common, yet under certain conditions it is of distinct value, since muscle and tendon transplantation does not offer much in this region. Where both hips are paralyzed the production of ankylosis in one, which will usually be fibrous, will enable the patient to get on his feet. The method suggested by Albee for operation in osteo-arthritis should be a distinct addition to the technic of arthrodesis of the hip.

The shoulder, when the scapular muscles are unaffected, yields excellent results from arthrodesis. Vulpius,[19] who reports twelve cases, had only two failures, and obtained bony ankylosis, which is to be sought, in 60 per cent. The average active motion possible in his case was 75 degrees of forward elevation, 60 degrees of side elevation and 25 degrees of backward elevation; marked improvement in the atrophied biceps and triceps was observed.

Astragalectomy.—On account of its lack of muscular attachment the astragalus is a factor in instability at the ankle, and hence its removal may be indicated. Astragalectomy is one step in Whitman's operation[15] for paralytic talipes calcaneus; when this is done the foot can be displaced backward, a procedure which gives improved stability and better leverage for the muscles which are transplanted into the heel.

Silk Ligaments, Tenodesis, Fasciodesis.—The chief objection to the older method of tendon grafting lies, as has been mentioned, in the fact that the improvement gained is often only that due to the action of the grafted muscle as an "additional ligament," independent action not being secured. Following out this idea, several methods have been suggested for directly utilizing the tendons of paralyzed muscles as ligaments, both as a supplementary operation and to obviate the necessity for an arthrodesis. The proximal ends of the tendons have been sutured to the bone (tenodesis of Codavilla-Reiner) or to the fascia (fasciodesis of Vulpius). The obvious objection to this is that the degenerated tendons will stretch and the method thus give only temporary improvement. The use of silk ligaments, a method at once simple and efficacious, yields a permanent fixation. These silk ligaments are of service in various joints but are in most common use at the ankle, where they are especially valuable in preventing toe-drop. In this condition, which may be taken as the type, the foot is simply suspended from the tibia by two double strands of silk; one double strand is quilted into the periosteum on the front of the tibia and then carried to the scaphoid, where it is sutured directly to the bone, while the other double strand passes from the same point to the cuboid.[20] Nature encapsulates the strands of silk and thus the ligaments are formed. Insertion directly into the bone must be at one end only to allow for adaptation in growth. This method of fixation may be used early in treatment, before other measures are indicated, for the purpose of removing all strain from weakened muscles and so giving them a better chance to recover; later in the course of treatment it may be employed when no muscle available for transplantation is present and as a substitute for arthrodesis; it is also of frequent service as an aid to other procedures.

Skin Flaps.—A very useful operation for overcoming the tendency to deformity is the removal of skin flaps,[21] which recommends itself on account of its simplicity. If the anterior muscles of the leg are weak, an oval piece of skin is removed from the top of the foot of such size that when the edges are approximated and accurately sutured the foot will be held in the desired position of dorsal flexion; by slightly varying the location of the flap to one or the other side the foot may be inclined toward pronation or supination. This procedure has the advantage of not interfering in any way with any subsequent operation; as a means of retaining the foot constantly in the desired position and obviating the objections incident to

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21. Jones, R.: Arthrodesis and Tendon Transplantation, Brit. Med. Jour., March 28, 1908.

brace treatment it is, therefore, applicable early in treatment and in very young children where other procedures are contraindicated. It may also be combined in other cases with tendon shortening and lengthening, and with transplantation or nerve anastomosis, as an aid in holding the part in an overcorrected position. Similarly, at the elbow the removal of a skin flap is of service in holding the joint in flexion, being in this region preferred by its originator to arthrodesis.

CONCLUSION

With all these measures for the improvement of function, orthopedic surgery of the present has much to offer the sufferers from this pitiable condition of infantile spinal paralysis, and it is rare indeed to find an untreated case in which some benefit cannot be given. Fortunately for us, treatment is most efficacious in the region most frequently affected—the foot. Yet in all regions enough can be gained to more than repay us for all our labor. To secure the maximum improvement a wise combination of the various procedures will usually be required.

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NOTE.—In addition to the authorities already cited, the following have been used:

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SILVER AND ROBERTSON AND CHESLEY

DR. ARCHIBALD CHURCH, Chicago: Every general practitioner must hail with delight the renewed activity of our surgical friends in the treatment of these very trying cases. My own experience is not very gratifying in the recommendations I have made for surgical operations in the correction of the deformities secondary to the inflammation of the cord of a poliomyelitic nature.

It has been the almost invariable result that after one or two operations either the patient, or his friends, or the surgeon becomes discouraged; and these operations have not been applied with sufficient frequency perhaps, to give the general operating surgeon much experience with, or much interest in them. The surgical fixation of a joint sometimes results very satisfactorily, especially in the knee or the ankle, yet I think astragalectomy unnecessary, because with very slight orthopedic apparatus the ankle-joint can usually be retained in a satisfactory position.

The recent recommendations of Dr. Schwab, carried out surgically by Dr. Allison, seem to promise something more satisfactory. They are not mutilating or destructive. By temporarily inhibiting the function by the injection of alcohol into the nerve supplying the muscles which have retained their function, and which tend to overact and so to produce the contracture deformities, one is enabled, according to the observations and experience of Allison and Schwab, to build up the power of the more or less atrophic, or completely paralyzed and atrophic muscles, and to secure better positions of the joints. This gives the opportunity for therapeutic massage and passive and active movements; so that the patient is led to put into play that fraction of power which has been preserved and which under ordinary circumstances is entirely overmastered by the contracture tendency in the stronger group of muscles. The technic is particularly simple. A nerve supplying the given muscles is exposed and alcohol in various strengths, 50 to 90 per cent., is injected directly into them.

With the transplantation of muscles my experience has been decidedly unfortunate. The functional gain has been of minimal value; but if we can in many of these cases obtain the enthusiastic assistance of a manipulator or massage operator, who will devote himself every day for a number of years to necessary manipulations, apparently severe and hopeless cases will frequently present a degree of recovery almost marvelous. I recall the case of a young girl who suffered quite extensive involvement of the upper extremities, trunk and lower extremities. Yet in the hands of an empirical rubber who calls himself a doctor, who has devoted himself to this case for five or six years, this girl has recovered practically after a time when I supposed recovery was out of the question. She now has a fairly plump pair of lower extremities, walks readily and sits up without orthopedic assistance. Some of her friends do not even know that she has been afflicted with a grave disorder. I attribute the results to the physician's attention and the local manipulations of the muscles by massage. Of course orthopedic apparatus had been applied and modified from time to time; various splints and braces have been devised; but the absolute devotion of this man to this case has produced results which I wish we might parallel in others, and thus gives me the courage to say that under such treatment, perhaps with the assistance of the alcohol injections, we may look for better results than we have attained hitherto, and without the necessity of serious surgical intervention.

DR. L. H. METTLER, Chicago: I congratulate Drs. Robertson and Silver on their thoroughly scientific presentation of this subject. Dr. Robertson's paper indicates the beautifully logical way in which our knowledge has grown in regard to the nature of anterior poliomyelitis. We all remember how the disease used to be regarded as primarily an atrophic condition. In a word, the emphasis used to be laid on the wasting of the muscles and of the associated neurons. Then followed the suggestion that embolic and thrombotic obstructions in the terminal branches of the anterior spinal artery were probably the cause, with or without an accompanying inflammation, of the wasting of the anterior cornual cells. Now we have reached the point of recognizing the condition as a form of infective hemorrhagic myelitis, with the most destructive center of the inflammation located in the anterior horns. And finally we are beginning to suspect, on the strongest sort of grounds, that the infection is more or less specific in character.

It seems to me that this calls for a rewriting and reclassification of the disease in most of our text-books. Instead of referring to it as a systemic affection under the general impression that it is a unique and distinct trouble belonging to a particular functional tract of the cord, we should recognize it as merely a variety of myelitis. Abroad they are suggesting the advisability of dropping the "polio" from the name of the disease and calling it "focal myelitis." Whether we are prepared to make so radical a change in a name that has been so long in use may well be questioned. The use of the term "poliomyelitis" for general clinical purposes can do no very great harm if we are careful to keep always in mind that the disease is nothing but a form of infectious myelitis, with involvement, in some cases at certain stages of the process, of other parts of the cord beside the anterior horns, namely, the white matter and the meninges. The atrophic changes, and their disastrous results, which so dominate the clinical manifestations of the disease later on, are more or less secondary or subordinate phenomena in the sum total of its pathology. These atrophic manifestations (and I am speaking especially of the lower motor neurons whose cell bodies nest in the anterior horns) are in all probability analogous to the pyramidal degenerations that occur in the cerebral palsies of childhood. The essential pathology of the infantile cerebral and spinal palsies, especially when due to infective hemorrhagic

inflammation in the gray matter of the brain and cord, is in all likelihood the same and affords strong ground for the contention of Strümpell, more popular in Europe than in this country, that the differentiation of cerebral from spinal infantile palsy is a mere clinical differentiation dependent on the particular functional characteristics of the parts involved.

It seems to me very practical thus to lay the emphasis in infantile palsy on the infective hemorrhagic inflammation rather than on the later and subordinate degenerative processes. The former condition suggests some better hope of managing the disease than the latter conditions. Infections and vascular troubles are always somewhat more amenable to treatment than are progressive degenerations. An early diagnosis, therefore, is more imperatively demanded under the newer conception of the pathology of anterior poliomyelitis; and if the theory be ultimately confirmed that the disease is due to some special germ or toxin, all the more imperative will be the demand for an early etiologic diagnosis; for in the early recognition of the nature and cause of the disease will rest the highest hopes of preventing its spread and further progress both in the individual and in the community. And finally, if we succeed in discovering a serum or other means of overcoming the specific toxin in this form of myelitis, infantile spinal palsy—and perhaps likewise infantile cerebral palsy in some post-natal cases at least—will not be regarded so hopelessly as it has heretofore been under the old atrophic conceptions of the disease handed down to us by Charcot, who was able to study it pathologically only in the late stages. Much will be accomplished in the future in the prevention and treatment of these cases if the bright indications in the newer conception of their pathology and etiology continue to develop.

DR. P. BASSOE, Chicago: I am not surprised that Dr. Robertson finds no thrombosis in his cases, as that condition is exceptional. The question of meningeal involvement brings up the most interesting controversy that is now going on as to the mode in which the disease extends. Of course it is well recognized that in most of the fatal cases there is either an ascending or a descending infection. Most of the fatal cases present the picture of Landry's paralysis. According to Harbitz and Scheel there is a primary meningitis, very slight, with infection of the spinal fluid, and a secondary involvement of the cord along the vessels. Now, Wickmann of Sweden, who has examined about an equal number of patients, does not agree with this, although his findings are principally the same, but he interprets them in an entirely different manner. In all cases the extent of the inflammation is much greater in the cord than it is in the meninges, and it is greater in the central part of the cord, in the gray matter, and in the adjacent white matter, than at the periphery. So Wickmann says that inflammation occurs primarily in the gray matter of the cord. It is an infection with round-cell infiltration in the perivascular lymphatics, and it extends along the lymphatics up and down, so that the cause of the ascent or descent is not a successive involvement of different levels from the meninges, but an extension along the perivascular channels. Harbitz says that there are not enough lymphatic channels to account for that. The extension must be from the meninges. Now if in Dr. Robertson's cases there is a sufficient degree of meningeal infiltration to account for the extension, that would be of course in favor of Harbitz's theory; but if there are many cord segments in which the meningeal changes are minimal, it would be hard to account for the extension at all levels.

There seems to be no doubt that there are cases of this disease due to the same contagium in which we have only a meningitis; it is also true that there are cases of meningitis due to other organisms in which cord changes may be produced that are exactly like those in poliomyelitis. Attention has quite recently been called to that fact by Claude and Lejonne of Paris, and I have seen a man taken simultaneously with symptoms of meningitis and a flaccid paraplegia. That was three years ago, and I saw the man a week ago and he looked like a patient with an old case of poliomyelitis. If it had not been for the presence of the diplococcus found in the acute stage, I would say that it was an old case of poliomyelitis in which there had been considerable meningeal involvement.

DR. A. L. SKOOG, Kansas City, Mo.: I observed a number of cases last summer, while under appointment of the Kansas State Board of Health to investigate the Kansas epidemic of poliomyelitis acuta, both clinically and pathologically. One striking feature of the epidemic in Kansas was a grouping chiefly in bordering portions of two counties in the northwestern part of the state. There were also isolated cases throughout different regions of the state. One of the noticeable points of this epidemic was the high mortality rate, about 33 per cent. of the patients dying. All told there were about forty cases in these two counties. Another interesting feature was the number of cases in adults. Adult cases have been reported, especially by Wickmann and others. Wickmann reports a patient aged 67. In this epidemic I was in consultation on one case, that of a woman aged 45, who also had marked cerebral symptoms. She died on the sixth or seventh day of the illness and I was unable to obtain permission to make an autopsy, but I did examine the cerebrospinal fluid, which showed a lymphocytosis and a few polymorphonuclear cells, with a count of about 30 or 40 to the field of centrifuged sediment. The fluid was absolutely clear and contained no bacteria. No bacteria appeared on culture, on injection of guinea-pigs, rabbits, chickens and two rhesus monkeys. Another feature about this epidemic was the number of cases which puzzled the local physicians in making differential diagnoses from Landry's paralysis. In fact two physicians did diagnose Landry's paralysis; although from observation of this epidemic I believe Landry's paralysis may be considered as a form of poliomyelitis acuta.

In regard to lumbar puncture, it seems to me very important that we should obtain or look for some means of making an earlier diagnosis than we have in the past, and to me the examination of the cerebrospinal fluid has been attractive. I did a lumbar puncture in all the cases in which I could obtain consent, and that was about 7 cases out of 25. In all of them that I examined there was a mild increase in lymphocytes, ranging usually from 5 to 20 per centrifuge or sedimented specimen. The fluid was absolutely clear in all the cases examined, and I could find no bacteria.

DR. ARTHUR S. HAMILTON, Minneapolis: The Section is to be congratulated on having the opportunity of listening to these two papers.

As Dr. Bassoe has suggested, it has been shown that the cell changes found in poliomyelitis may be found also in other conditions in which there is an acute intoxication. In fact, as far as I know, it is quite impossible to tell the changes which occur in the large cells of the cord in one intoxication from those that occur in another. I have no doubt that in poliomyelitis most of the changes that occur in the cells are due to mechanical disturbance in the circulation, and the consequent upsetting of the nutritional balance of the cells; but I think we are safe in assuming that some of these changes are due to toxins, especially since the same changes can be found in other conditions where there is intoxication without mechanical disturbance in the circulation.

Six weeks ago there was admitted to the Minneapolis City Hospital a young man of 24, who passed through a very ordinary attack of lobar pneumonia, except that it was rather more severe than the average case. Aside from that there were no unusual features until, at the time when the man was about to sit up in a chair, it was discovered that he had no power in his legs. The physician had not observed it before, and the patient himself, though he had recognized the condition, had thought nothing about it, assuming that it was a natural consequence of his illness. When he came to get up he could not flex his thighs on the abdomen and had but slight power of flexion of the foot on the leg. There was no history of pain and, so far as I could make out, there was no disturbance of sensation. The patellar reflex and the Achilles jerk was absent. It did not look to me like a case of peripheral neuritis, although I find a few such cases have been reported as associated with pneumonia. There was very little subsequently of interest in the case and the man recovered quite rapidly. At the end of two weeks the reflexes had returned; he had obtained fair power in his legs; could stand without assistance, and in three weeks could walk out

of the hospital, and has since fully recovered. It seems to me that this is a case of poliomyelitis, not in a technical sense, but in the sense that the lesion is much more likely in the anterior horn cells than in the peripheral nerves.

In reference to the change of name of poliomyelitis, it does seem that the present term is rather misleading. At the same time I think we should hesitate to apply the term myelitis. It is true that the gross manifestation, as we see it, is a myelitis; but all the recent evidences show that we are dealing with a general intoxication, an infection of some sort. Dr. Robertson has brought that out in his statement of the post-mortem findings that there was evidence of acute intoxication in various other organs in addition to the changes which occurred in the cord. It seems to me, therefore, that we should wait for further light on the subject before we attempt another designation.

DR. NATHANIEL ALLISON, St. Louis: As orthopedic surgeons we are interested in these cases chiefly as the final results of a disease and we deal with final results, or hope to deal with them. The investigations recently made in the pathology of this disease makes it seem quite possible that in a few years there will be no more cases of poliomyelitis and no results of this disease to treat. This is a consummation much to be desired. Dr. Silver has gone over in a most systematic and complete way all the things that have been done surgically for the relief of poliomyelitis. He has taken the subject up in such a way as to leave very little to say about it, except in one particular, and that is the use of nerve anastomosis as a relief.

The selection of any operation for the relief of poliomyelitis must be based on a pretty wide experience and knowledge of the mechanical conditions to be brought about after the operation; many papers have appeared on this subject, and many reasons have been given for failure in tendon transplantation, for failure in arthrodesis, etc., and for failure following anastomosis. The work of Kilvington and other English experimenters shows that nerve anastomoses will regenerate and quite extensively. Dr. Schwab and myself have been working on these problems with the combined point of view of the neurologist and the orthopedic surgeon. We started to alcoholize the nerves in cases of poliomyelitis following the success we had in alcoholizing the nerves supplying muscle groups in spastic paraplegias and spastic quadriplegias. We have had some very successful cases in which there was overaction of the hamstrings, in which the alcoholization of the particular nerves supplying the overacting muscle group caused the overacting muscle group to cease to overact, and gave the weaker antagonistic group in spastic palsy a chance to pick up power.

Where there is sufficient power in a muscle or muscle group in the foot to produce a deformity, such for instance, as the deformity of club-foot, then there are active nervous elements in the leg. The question is to select these nerve elements and make what can be made out of them by nerve anastomosis, leaving the tendons and joints untouched. This should be considered always first as a procedure, because if regeneration is established the result will be better than that obtained by fixing a joint or by tendon or muscle transplantation.

We have done several operations of this nature, one for instance, in two cases of isolated quadriceps paralysis. The branch of the quadriceps was severed from the anterior crural trunk and put under the vessels into the obturator nerve. This has been followed by regeneration in both instances, and the opposing group to this return of power in this weakened quadriceps, is the hamstrings. The sciatic nerve was exposed down the back of the thigh and the branches to the hamstring muscles were injected with alcohol, thereby throwing out the opposing group for a more or less definite period of time.

The relative value of all the procedures properly performed has been clearly demonstrated in Dr. Silver's paper. Dr. Lovett has written a paper recently, in which he showed that failure was due to neglect on the surgeon's part of the after treatment of these cases. The patients are not cured when the operation is done. These are cases on which someone must put time, patience and much physical energy in order to secure the improvement that should be expected.

DR. FRANK R. FRY, St. Louis: We have all been hammering away at various modes of treatment for many years, and, as Dr. Church has intimated, with very little encouragement. In more recent times it seems to me the important function of the neurologist in these cases is to impress on the patient and those who have charge of them the fact that they have a chronic situation on hand for the treatment of which they must stir up as much enthusiasm among themselves as they possibly can in the midst of adverse circumstances. For instance, massage, I believe, is uniformly accepted by neurologists as the only rational routine method. We should tell our patients that massage must be practiced not for a few months but for several years. Many patients cannot afford to have the services of a professional rubber; we must educate somebody in connection with the case to carry on this work effectively.

Some years ago Dr. Hammond, of New York, taking a lot of old cases of poliomyelitis in which muscles showed no reactions whatever to electrical current, was able, continuing the current with persistency, to develop reactions in these muscles. He published this fact, but he never published the sequel of it, which I obtained in personal conversation with him, namely, that afterward these muscles lapsed to their former condition. That is the kind of discouragement to which we have become used. It is on account of that fact that neurologists to-day are more interested in what the orthopedists are doing, than in anything they feel capable of accomplishing themselves. I personally feel no comfort in trying to take care of a poliomyelitis patient without being in contact with a reliable orthopedist all the time.

DR. C. R. WOODSEN, St. Joseph, Mo.: I believe that the lack of success of orthopedic measures is due largely to the fact that too many men undertake to do this work, who are not familiar with the nervous system, especially its anatomy and the function of various nerves. There are few men who do this work well, and there should be a specializing along that line.

There is one thing that every physician who sees a case of poliomyelitis can do and should do, and that is, to make an early diagnosis. A lack of effort to diagnose is responsible in many instances for a failure to diagnose, but the important thing to do is to prevent deformities. It can be diagnosed before paralysis appears. It may not be diagnosed of course, until afterward, as has been stated, but the important thing is to retain a proper temperature and prevent deformity and institute early treatment of massage and electrotherapeutics. It is easy to prevent deformities if the case is taken early. In some cases treatment does not restore function, but the prevention of a deformity makes the cure much more easy.

DR. C. H. HUGHES, St. Louis: Having had a rather extensive experience in the direction of poliomyelitis anterior, as you may probably guess from the color of my hair, I wish to make an addition of something that has not been contributed to this subject.

Two instances are now in my mind of recoveries from poliomyelitis anterior. One child was brought to me in the arms of the nurse, sent to me by a very able physician down there in southern Illinois, where malaria is said by the inhabitants to be so thick that you could cut it with a knife. I noted that there were no cerebral symptoms connected with the case; this absence is to be expected in a typical case of poliomyelitis. There was no delirium; there had been no coma at any time; it was not a case of cerebral apoplexy; both lower limbs were paralyzed, and it occurred to me, being familiar with the practice of medical men in this section of the country and below, that I would add to my treatment a vigorous course of quinin. Quinin and protoiodid of mercury were sufficient to bring about a complete restoration in that case of poliomyelitis anterior within six weeks without deformity. I considered the cure complete in ten weeks and permitted the child to go home. That girl is now a grown woman, free from any evidence of any sort of the after-consequences, contracture deformities, etc., that so often confront us, to our dismay, in the management of poliomyelitis anterior. Unfortunately I have not had the good fortune in

the majority of my cases to see such satisfactory results effected.

In the other case the child was placed by the nurse on the steps on a hot summer day and fell asleep; and when the nurse came to it again the child had no use of its lower limbs, but had not lost consciousness, had no mental impairment, and no evidences of anything else except the involvement of the anterior horns of the spinal cord. That child recovered, and that is all the recoveries out of a good many cases that I might record.

Notwithstanding the microbic invasion in poliomyelitis acuta, we generally believe that its attack is somewhat similar to that of pneumonia. Now the common impression is that the pneumonia develops the chill. My impression is that the chill permits the microbic invasion, and then we have the work done by the pneumococcus in pneumonia and the infective agent in this essential paralysis of children thus gets in its damaging work.

DR. H. E. ROBERTSON, Minneapolis: In regard to the involvement of the pia mater I am unable to agree with the authorities who urge that such involvement is primary. I have always found the involvement of the cord more marked in any particular region than that of the corresponding pia. The place of infection is the perivascular lymph-channels, extending to the interstitial portions of the gray matter of the cord, and second, to the lymph-channels in the pia mater, and even to the gray and white matter of the posterior columns.

DR. DAVID SILVER, Pittsburg: My paper was intended as a review of the literature of the present-day surgical treatment of this affection. Regarding Dr. Hammond's results, cited by Dr. Fry, one would naturally expect relapse, because, while muscular tissue was present, it was not sufficient to meet the demands of functional use. In such cases some procedure is obviously required to decrease the amount of work demanded of the muscles, as for example, arthrodesis.

An unusual amount of patience is required in dealing with these cases. I mentioned several procedures which seem to me of distinct value and I wish again to emphasize them. My first point is that in a drop-foot, for example, it is obviously of much greater value, early in the treatment, to fix the foot by taking out a skin flap or by making an artificial ligament, which does not interfere with any subsequent operation, than to fix it with a brace, because the brace not only interferes with the function of the part but its daily removal is a disadvantage; the part must be retained constantly in the position of maximum relaxation, if a return of power in the weakened muscles is to be secured. The second point is that in every case deformity must be overcome a long time before any operation for the restoration of function is attempted. Usually when the patient consults the surgeon, some operation like nerve anastomosis or tendon transplantation is at once proposed, instead of preliminary treatment being instituted to determine accurately the degree and the extent of the paralysis and to put the part in the most favorable condition for such operation. If such preliminary treatment is carefully carried out, I am sure our results will be very much more favorable.

BRONCHIAL ASTHMA AS A PHENOMENON OF ANAPHYLAXIS*

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NEW YORK

It is now generally accepted that bronchial or idiopathic asthma is due primarily to a stenosis of the bronchioli. It is not necessary to dwell here on the particulars of this disease. For the purpose of this paper, however, the following facts may be mentioned. Asthmatic attacks occur only in individuals who are especially subject to it, that is in asthmatics. Furthermore, onset and disappearance of the attacks bear the character of capriciousness. Heredity, also, seems to be an influential element in some instances. Finally, there is practically no pathologic anatomy in this disease. On the basis of these facts, bronchial asthma is considered as a functional disease which, according to the prevailing view, means a neurosis; hence also the term nervous asthma. From the symptomatology we shall mention here only the following points: By percussion it can be established that during an attack of asthma the lungs are overdistended. The auscultation reveals that there is a considerable decrease of the respiratory exchange of air despite the greatly increased efforts of the respiratory muscles.

There are two theories regarding the nature of the nervous origin of the bronchostenosis in asthma. One theory assumes that the stenosis is due to a vasomotor disturbance, which brings about a swelling of the mucous membranes or of the submucous tissues of the bronchioli, causing thereby a narrowing of their lumen. The other theory assumes that the stenosis is due to a tonic contraction of the muscle fibers surrounding the finest bronchial tubes. At present, the latter theory is accepted by most of the clinical writers, especially since it was established by the careful physiologic investigations of Einthoven[1] and of Brodie and Dixon,[2] that by stimulation of the peripheral end of the pneumogastric nerves a stenosis of the bronchi takes place which is due exclusively to a contraction of the muscle fibers and not to the production of circulatory changes of any kind. According to this theory an attack is brought on by a stimulation of the broncho-constrictor nerve fibers which run in the pneumogastric nerves. It is assumed that the stimulation takes place, in some obscure way, mostly in the medulla oblongata; in some cases, however, it may be brought about in a reflex way from some peripheral organ. At any rate, asthma, according to this view, is a nervous affection and has its origin in the central nervous system.

It is my intention to attempt to interpret the asthmatic paroxysm as a phenomenon of anaphylaxis, assuming at the same time that the process is a peripheral one. This attempt is based on some very interesting facts recently discovered by Drs. Auer and Lewis[3] in the Department of Physiology and Pharmacology of the Rockefeller Institute. In order to understand clearly the points I wish to bring forward, permit me to make a few elementary remarks on the subject of anaphylaxis or hypersusceptibility.

ANAPHYLAXIS

Anaphylaxis is in an essential point the reverse of immunity. All know what immunity means. Every physician is familiar with the fact that a patient who has recovered from an infectious disease, typhoid, for instance, is less susceptible to a second infection from the same disease. The same applies to the effects of toxins. The experimental work of the last two decades has furnished ample evidence that the injections into an animal of non-fatal doses of toxins, for instance the toxins of diphtheria or tetanus, make this animal more resistant—it immunizes it—against this very toxin. In other words, the passing through a definite infection or intoxication is the means of a decrease of the susceptibility of that animal to the specific infection or intoxication. There were, however, scattered facts which indicated also that the reverse of immunization may occur; that is, that instead of a decrease of susceptibility, an increase may

* Read at the Annual Meeting of the Association of American Physicians, Washington, D. C., May 4, 1910.

1. Einthoven: Arch. f. d. ges. Physiol. (Pflüger's), 1892, li, 367.
2. Brodie and Dixon: Jour. Physiol., 1903, xxix, 97.
3. Auer and Lewis: Jour. Exper. Med., 1910, xii, 151. See also THE JOURNAL A. M. A., 1909, lii, 458.

occur. For instance, the passing through an attack of erysipelas seems to prepare the individual for recurrent attacks of this disease. The same is perhaps also true of pneumonia. In the extensive work on the immunization against toxins, several investigators recorded observations to the effect that an immunization led up to a hypersusceptibility.[4] However, about five years ago, striking experiments became known which all at once raised this issue to a problem of considerable importance. Our president told us that the present annual meeting is the twenty-fifth of our Society, and pointed with pride to the good work which the members have contributed to medical science. Permit me therefore the historical remark that the striking and fundamental facts on which the very interesting chapter of anaphylaxis rests were first observed and developed by members of our Association. In the course of his studies of the effects of diphtheria toxin and antitoxin on guinea pigs, Theobald Smith observed (1903) that by repeated injections of toxins, these animals instead of becoming immunized sometimes manifested rather a definite increase of their susceptibility to the poisonous effects of the diphtheria toxin. These observations Dr. Smith communicated orally to Paul Ehrlich during his sojourn in this country. On his return to his Institute in Germany, Ehrlich caused one of his pupils, Otto, to investigate systematically this observation, who, in publishing his results, designated the fact of the hypersusceptibility as Theobald Smith's phenomenon. Simultaneously, and independently of any other observer, the striking phenomenon was observed and extensively investigated by Dr. Rosenau in conjunction with Anderson.[5]

EXPERIMENT

The fundamental experiment which brings out this phenomenon in a striking manner is as follows:

A guinea-pig receives a subcutaneous or intraperitoneal injection, let us say, of a small dose of horse serum. The injection produces apparently no effect; the animal remains perfectly normal. When, however, a few weeks later a second injection of horse serum is given to this animal, let us say one c.c. of the serum, given intravenously, the animal dies within a few minutes with striking manifestations. This is an absolutely reliable experiment which never fails. Now you observe that the result as described here was accomplished not with a bacterial secretion, a diphtheria or tetanus toxin, or an endotoxin of any other bacteria, but simply with normal horse serum, which seems to be innocuous in its first injection. In fact, this hypersusceptibility can be produced with such harmless proteins as egg albumin, milk or some vegetable protein, edestin, for instance.[6] A striking feature of this phenomenon is that it is strictly specific; if the first injection was made with horse serum, the phenomenon will occur only when horse serum is used in the second injection, or if edestin was used in the first injection, only a second injection of edestin is capable of producing the fatal phenomenon.

Let me now say a word about the origin of the term anaphylaxis. It was created by Richet some eight years ago. In studying the effects of a poison which he isolated from actinia he distinguished two opposite actions one which produces prophylaxis (immunity) and another which produces anaphylaxis (hypersusceptibility). The term anaphylaxis found general acceptance.

4. We may mention here: Behring (1893), Richet (1902), Arthus (1903), Wolf (Eisner), (1904) v. Pirquet and Schick (1905).

5. The publications of Otto as well as those of Rosenau and Anderson appeared in 1906, and I am at present unable to state which one of the publications was ahead of the other. But I can bear witness to the complete independence of the observations of Rosenau and Anderson, because in December, 1905, Dr. Rosenau was kind enough to communicate to me their remarkable experience, and we discussed the possible meaning of the phenomenon.

6. First successfully employed by P. A. Lewis.

Now let us remember first of all that for the production of anaphylaxis two stages, two separate processes are necessary. The first part consists simply in an injection into the animal body of some foreign proteid. It produces practically no visible effect, but it sensitizes the organism; we call it therefore the sensitizing injection. It need not be an intravenous injection; an incorporation of the proteid in any other manner will have the same effect. The quantity of the proteid is also of no special importance; a very minute dose of the proteid sensitizes an animal. The second part consists, as stated before, in a repeated injection of the same proteid; this is the toxic injection. The effect of this injection is, indeed, most striking, especially when it is given intravenously. The quantity is also of some importance; the larger the dose, the more prompt is the effect. The second injection should not be given too soon after the sensitizing injection; the interval between the two injections should be at least twelve or fourteen days.

The sensitizing effect may be transmitted from the mother to the offspring which, however, may gradually dwindle away. The acquired sensitization leaves a long-lasting impression; even after years a second injection is capable of producing a definite toxic effect. The effect, however, is not always fatal and as striking as described above. When the second dose is not sufficiently large, or when administered in a less effective manner, the guinea-pigs may recover from the "anaphylactic shock" (as the violent attack is often designated), or the attack may set in with less violence.

PHENOMENA OF ANAPHYLACTIC SHOCK

We now come to a discussion of the point which interests us here mostly, namely the character of the attack. From the start, all observers agreed that the death of a guinea-pig in an anaphylactic attack is due to respiratory failure. The attack consists in exaggerated respiratory efforts and manifestations of profound dyspnea. Most of the writers assumed that the cause of this fatal respiratory disorder is located within the respiratory center in the medulla oblongata. Gay and Southard,[7] who have done meritorious work on the problem of anaphylaxis, are emphatic in their claim that the fatal respiratory phenomenon is due to a hyperstimulation of the respiratory center. Although Gay and Southard noticed that the lungs of guinea-pigs dying in anaphylactic shock are "emphysematous" they considered this condition as being only a secondary effect of the violent inspiratory contractions of the diaphragm, the primary cause of the attack being, as stated before, the over-stimulation of the respiratory center.

The recent investigations of Auer and Lewis, however, have in my opinion definitely established the true cause of the anaphylactic shock in guinea-pigs. In the first place, they have established that the lungs, which become greatly distended with the onset of the attack, remain in a distended state even after their complete removal from the thoracic cavity after the death of the animal; in fact, the lungs do not collapse even when cut into pieces. An anatomic study of the lungs demonstrated that the distention is due neither to emphysema nor to pulmonary edema. Furthermore, the typical condition of the lungs remained the same even if the second, toxic injection of the serum was administered while the animal was under the influence of curare (and the life kept up by artificial respiration); that shows that the

7. Gay and Southard: Jour. Med. Research, 1908, xix, 22.

distended state of the lungs cannot be simply a secondary effect of the violent contractions of the diaphragm. The real character of the dyspnea was revealed by the fact that during the anaphylactic attack the lungs could not be further inflated by artificial respiration; that is, air could not pass through the bronchi into the alveoli while the respiratory efforts produced at the same time a strong negative pressure in the pleural cavities. Finally, Auer and Lewis have established that the anaphylactic attack takes place in animals with a destroyed central nervous system, exactly in the same way as in normal animals, which proves that the process is of peripheral origin. In other words, Auer and Lewis have definitely proved that the cause of the acute anaphylactic death of guinea-pigs is a stenosis of the bronchi due to a peripheral process. This process consists, Auer and Lewis believe, in a constriction of the bronchi due to a tonic contraction of their muscle fibers. It is sure that these contractions are not brought about by central impulses. Whether these contractions are brought about by a stimulation of the muscle fibers themselves or of the nerve endings, this question Auer and Lewis have not attempted to decide for the present. They have discovered the important fact that in many cases the anaphylactic attack can be prevented by a previous injection of atropin. This fact would indicate, according to the accepted view, that the nerve endings are responsible for the attack. On the other hand, Auer[8] recently found that the attack would set in even in animals in which the vagus nerves were cut a long time before the second injection. The nerve-endings therefore must have been degenerated previous to the anaphylactic attack. We may add here that the important results of Auer and Lewis were confirmed by Anderson and Schultz[9] and by Biedl and Kraus.[10]

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SIMILARITY TO NERVOUS ASTHMA

The following facts, observed by Auer and Lewis, are of special interest to us here. In an anaphylactic attack the bronchi are constricted; no air can pass into the alveoli, nor can it escape from them; and the lungs are greatly distended and cannot collapse. It was shown that the constriction of the bronchi is of peripheral and not of central origin. Now exactly similar symptoms are met with in so-called nervous asthma. During the attack the bronchi are constricted, air passes through them only with great difficulty. Is asthma a nervous process and of central origin, as is generally assumed, or is it an anaphylactic phenomenon and essentially of peripheral origin? That is, may we not assume that asthmatics are individuals who are sensitized to a definite proteid substance and that the asthmatic attack takes place when the same proteid substance invades the body in the same manner? For one form of asthma this has been established experimentally, and that is for hay fever asthma. As is now well-known, hay-fever is due to the toxalbumins of the pollen of some plants. When such a toxin is injected subcutaneously into a normal individual, it causes no effect whatsoever. If, however, a minute quantity of it is injected into an individual who is subject to hay-fever, in a short time all the symptoms of hay-fever appear, and among them a definite attack of asthma. This can mean only that hay-fever subjects are sensitized to a specific proteid of the pollen of a definite plant, and that whenever the same proteid invades these individuals in some way or other the result is an anaphylactic attack, which, among other phenomena manifests itself in the form of asthma. May we not explain all other forms of asthma in the same manner?

According to this view, to repeat again, an asthmatic is an individual who is sensitized to a definite substance and an asthmatic attack sets in every time this substance manages in some way to enter into the circulation of that individual. We must bear in mind that even in the crude manner of our experiments a very minute quantity of the specific proteid is sufficient for the sensitization as well as for the intoxication. In the actual processes which take place in Nature the effective doses may be infinitely small, and it may well be possible that the minute quantities contained in the emanations from horses, cats or guinea-pigs are sufficient to act as a toxic dose and call forth the non-fatal stenosis of the bronchi evidently present in an asthmatic attack in the human. Perhaps certain digestion products of the proteins become now and then absorbed into the circulation from the alimentary canal in some cases in an abnormal stage.

Such an absorption may have little or no influence on normal individuals, but will call forth an anaphylactic attack, that is, an attack of asthma, in an individual sensitized to this protein product. We need not attempt to work out the details of our theory. Our knowledge of the anaphylactic process is yet too young and too scanty for such an undertaking; any application in detail will surely soon have to be rearranged. But with our theory in mind, a future study of cases of asthma might bring to light definite causal relations, just as happened in the studies of hay-fever. For the present, the following parallel facts may be recalled to mind. The sensitization to anaphylaxis may be hereditary or acquired; so is the disposition to asthma either hereditary or acquired. Anaphylaxis is specific; animals sensitized to a definite proteid can be intoxicated only by that proteid. The same seems to be true also for asthma. This is certainly true for the hay-fever asthma. Individuals who suffer from hay-fever in the spring due to the grass pollen are not subject to the autumnal attacks which are caused by the ragweed pollen. But the specificity seems to hold good also for other cases of asthma. For instance, individuals who get attacks of asthma in the presence of cats do not get it by the emanations from horses or from guinea-pigs. A most interesting and valuable point is the fact that atropin, which relieves asthma, relieves, as it was discovered by Auer and Lewis, also the anaphylactic attack. On the basis of the identification of the two phenomena there is an encouraging outlook for the therapeutics of anaphylaxis as well as for asthma. But I shall not indulge in a further discussion of the details of our subject.

SUMMARY

It is generally agreed that the so-called nervous asthma is due to a stenosis of the bronchioli. It was discovered that the so-called anaphylactic shock is due also to a stenosis of the fine bronchi. The theory is here offered that asthma is an anaphylactic phenomenon; that is, that asthmatics are individuals who are "sensitized" to a specific substance and the attack of asthma sets in whenever they are "intoxicated" by that substance.

It has been proved that the anaphylactic attack is of peripheral and not of central origin. It is therefore suggested that the so-called nervous asthma is also due to a

8. Auer: Proc. Soc. Exper. Biol. and Med., 1910, vii, No. 4.
9. Anderson and Schultz: Proc. Soc. Exper. Biol. and Med., 1910, vii, 32.
10. Biedl and Kraus: Wien. klin. Wchnschr., 1910, xxiii, 385.

peripheral and not a central cause; in other words, "nervous" asthma is not a neurosis.

On account of the capriciousness of the onset and courses of asthmatic attacks, as well as on account of the absence of pathological-anatomical changes in this affection, asthma was considered a functional disease and hence a neurosis. From our point of view asthma is still a functional disease but not a neurosis. We have therefore a significant instance in which a functional disease need not be of nervous origin.

Rockefeller Institute for Medical Research.

VOMITING OF GALL-STONE

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The following is herewith reported to place on record a case which I believe is rare enough to be of some interest:

History.—Mrs. S., aged 40, was seen on July 3, 1910, at which time she complained of nausea and "feelings of distress" in the epigastric regin. There was no rise in pulse-rate or temperature. Palpation over gastric and hepatic region elicited no tenderness. The patient had been constipated for several days and gave a history of three attacks of similar nature while traveling in the west, one on April 7, another April 15 and the third about May 1, the attack on May 1 being diagnosed as appendicitis. She was given one grain of mild mercurous chlorid every hour for three doses, the evening of July 3. Early the next morning, July 4, the nausea became very distressing and the patient vomited about 6 to 8 ounces of mucus and gastric juice, after which she took a glass of champagne to relieve the distress. About twenty minutes after taking the champagne she vomited (in my presence) a drachm or more of what looked to be pure bile and a small dark substance which made an audible click when it struck the side of the vessel. On closer examination of the substance it was found to be a gall-stone of the cholesterin and bilirubin-calcium variety, with two facets on it. Following the expulsion of the stone and bile the patient seemed to obtain immediate relief and did not vomit again. On deep palpation I could now find some tenderness over the gall-bladder area.

Dr. O. H. Elbrecht of St. Louis saw the case in the evening with me.

Operation.—July 6, the gall-bladder was exposed through a right rectus incision and found irregular in shape, of normal size, with walls in a healthy condition and no adhesions present. The appendix was looked at and found to be held down with a few adhesions which were separated and the organ removed by the usual method of crushing and invaginating the stump with purse-string suture. The area around the gall-bladder was walled off with gauze and the organ incised at the fundus, allowing the escape of a small quantity of bile and seven medium-sized stones, ranging in size from a grain of wheat to a hazel-nut, then one large stone the size of a large Brazil-nut was removed with a spoon curette, the gall-bladder thoroughly sponged out and the cystic, common, and hepatic ducts palpated but no stones felt. The packing was next removed and the gall-bladder drained with a rubber tube placed in the fundus and fixed by a purse-string suture to the parietal peritoneum, the wound closed by tier suture, and the patient dressed and placed in bed.

Postoperative History.—The patient was nauseated for some time afterward and next morning vomited a large quantity of bile, and passed a quantity by tube. The tube was removed on the fourth day; the stool was bile-stained on the seventh day. There was no rise of temperature or pulse following the operation. The patient was removed to her home on twelfth day and her bowels moved of own accord on fourteenth day. The wound was entirely healed on the fifteenth day. A very interesting and extremely satisfactory result to the patient, who had been dependent on cathartics and enemas for the last eighteen years, is that since two weeks following the operation her bowels have been moving daily and sometimes twice daily without assistance.

I am preparing a paper on the records of all cases reported of vomited gall-stones and I should be pleased to hear from physicians who have had such cases to report.

Special Article

EPIDEMIC POLIOMYELITIS

A DISCUSSION OF THE PREVALENT INFANTILE PARALYSIS

Epidemic poliomyelitis has long been known under the name of infantile paralysis and under this name its symptomatology has been described in the text-books. Small outbreaks have been described, one occurring in the United States as early as 1841, but epidemics were not frequently noticed until about 15 years ago. The prevalence of the disease appears to have been increasing since that time. An extensive outbreak occurred in Sweden in 1905 and two have occurred in Australia, one in 1903 and the other in 1908. An extensive epidemic occurred last year in Prussia, especially in Westphalia. The principal epidemics in this country during the last 3 years have occurred in Boston, New York, Minnesota, Kansas, etc., and the disease has been unusually prevalent during the past summer in many states.

The interest excited by these epidemics has led to a great deal of investigation which has advanced our knowledge of the nature of the disease.

The disease is a general infection, attacking chiefly the nervous system and localizing itself in the anterior horns of the spinal cord.

ETIOLOGY

July, August, September and October are the months in which most cases occur. Both sporadic cases and those in epidemics have been noted to occur after hot dry weather. The disease is more prevalent in cold than in warm countries. Clinical experience has shown that the disease is contagious, though it is perhaps not highly so. The way in which it is communicated is not certainly known. Dust has been suggested as one means of conveying the contagium. In the Massachusetts epidemic out of 150 cases investigated 62, or nearly half, had been swimming or wading in water contaminated by sewage, just before the onset of the disease. The experiments of Flexner give some reason to believe that the virus is contained in the mucous membrane of the pharynx to an unusual degree. On the other hand, careful autopsies have shown that lesions of the tonsils or of the pharyngeal mucosa are not constant.

The nature of the virus is not known. That it is a living organism is rendered probable by the fact that it can be transmitted from man to the ape and from this ape to a second ape, as shown by experiments of Flexner and Lewis

and Römer. The disease was first communicated to apes by intradural injection of the substance of the spinal cord. Subsequent experiments of Flexner have shown that the same results can be obtained by intraperitoneal and even by subcutaneous injection of the filterable virus. The germ, if such there be, is so small as to pass through a Berkefeld filter. No micro-organism has been discovered that can be regarded as the cause of the disease.

PATHOLOGY

The pathologic changes are thus summed up by Hochhaus: There is a vascular inflammation of the anterior horns (gray matter) throughout the whole axis of the spinal cord; in addition the inflammation often extends to the posterior cornua, the white substance and to the meninges. In many cases the medulla and the pons are affected as also the brain. This appears to be constantly the case in the severe cases.

SYMPTOMATOLOGY AND COURSE

The disease varies as to degree of severity, type and structures most prominently involved, and for convenience in description may be divided into the following forms: The abortive form, those of moderate severity, the acute ascending poliomyelitis of severe type, the bulbar and the encephalic. Abortive cases may not be recognized by one not familiar with the condition even during epidemics. The incubation period is from five to thirty-three days, the average being about ten days in the experimental cases of Flexner and Lewis. Beneke found in some experiments on rabbits that the animals showed no symptoms for from eight to eleven days. The first symptoms usually observed in all forms are connected with the gastro-intestinal tract; in 90 per cent. of cases as found by Krause. In two-thirds of these there was diarrhea and in the remainder constipation. Rarely the disease begins with angina or with inflammation in the respiratory tract. In the mild or abortive cases there may be a moderate degree of fever, sweating, some headache, the patient is restless and complains of neckache and backache, with pains down the legs, and in young infants there may be muscular twitchings and sensitiveness when handled. Leucopenia is an important initial symptom, as noted by E. Müller. In many cases the child cries with the slightest movement. Delirium rarely occurs. The sensorium is usually unaffected. Symptoms occurring during the course of the fever, at first interpreted as weakness, may be the signs of the beginning paralysis, and should be watched for. The child may not be able to sit up or hold up its head. According to some authors, there is no forcible retraction of the head, but a falling backward of the head from paretic relaxation of the muscles. The symptoms subside in a few days and then it may be noted for the first time that the patient is disinclined to use the legs, or complains of muscular weakness and fatigue to a greater extent than would be warranted by the length of the illness, but no actual paralysis develops and recovery is complete in a week or two.

In the moderately severe form the symptoms are similar, but more severe. There may be rigidity of the neck and retraction of the head, the temperature is higher, running up to 101 to 103 F., with vomiting, sweating, prostration, restlessness and severe pains in the back and extremities, and in some cases with inability to empty the bladder or to control the bowels. In three or four days a flaccid paralysis occurs involving a group of muscles, one extremity, or both, or may involve the trunk or upper extremities. This paralysis reaches its maximum in a few hours, or perhaps in three or four days, and in a week or ten days begins to improve, which improvement continues until only a small amount of paralysis remains, but this is usually permanent. Recovery may, however, be complete even in severe cases during epidemics. The ganglion cells controlling many muscles do not degenerate. These recover in a short time, while the muscles corresponding to permanent lesions in the spinal cord remain permanently paralyzed. This permanent paralysis usually affects the legs; rarely the arms. Paralysis of the thighs is uncommon, and usually only a group of the leg muscles is permanently affected. Anesthesia has been observed.

The acute ascending type is like that last described, but the lower extremities, bladder, rectum, abdomen, diaphragm, back, chest, upper extremities, throat, etc., are involved in succession until the paralysis reaches the medulla when respiratory paralysis and death ensue.

In the bulbar form, aside from the other general symptoms, the paralysis first attacks the bulbar region, causing paralysis of the throat, eyes, face, tongue, with strabismus in various forms, difficulty in deglutition and phonation, choking and other related symptoms. Respiratory paralysis may also occur in this form as in the ascending type. Recovery may be complete or partial.

In the severer forms in which death does not occur there may be a period in which the patient remains in about the same condition and then improvement in the paralysis occurs rapidly to a certain point, and then slowly for a period of about two years, after which any remaining paralysis is permanent.

IMMUNITY

Flexner and Lewis have found in their experiments that one attack probably confers immunity from subsequent attacks. They have also established immunity by repeated injections of the filterable virus in gradually increased quantities.

DIAGNOSIS

The prospect of efficient treatment of this disease depends on early diagnosis. No treatment can accomplish much after paralysis has supervened. It is during the period of fever and initial paralysis that an antitoxin or immune serum if one were available would need to be applied in order to do any good. It is therefore of the utmost importance that the earliest symptoms of illness —especially in children during the prevalence of poliomyelitis—should be closely scrutinized with a view to discovering diagnostic points that may make the early recognition of the disease possible. At present little positive aid can be obtained from our knowledge of the symptomatology. It must be differentiated from cerebrospinal meningitis. In the latter disease the cerebral symptoms are more pronounced, the retraction of the head and stiffness of the spine more characteristic, and there is absence of paralysis. Examination of the cerebrospinal fluid would also help to differentiate the two conditions. The conjunction of diarrhea, fever, and sweating is suggestive and should afford reason for investigating the case carefully. Such a patient, especially a child, should

be visited at frequent intervals and examined for the first symptoms of paralysis. The examination of the blood will show leucopenia. Some observers have found an increase of lymphocytes in the cerebrospinal fluid. The occurrence of the general paralysis manifesting itself in the form of weakness, together with pain in the limbs and tenderness on moving the spine, is confirmatory. The predominance of a flaccid paralysis in one or more groups of muscles in the lower extremity completes the diagnosis.

PROGNOSIS

The mortality has varied considerably; in various epidemics from 5 to 20 per cent., in some cases being as high as 40 per cent. It is usually not very great. Evidence of abortive cases is afforded by the fact that in many instances other members of the family have suffered from diarrhea without the paralytic symptoms (Krause). There are probably also cases in which death occurs, sometimes suddenly, from the general infection without any symptoms of paralysis. Beneke noted such results in two of the rabbits inoculated by him. The possibility of complete recovery from the paralysis is admitted, but Krause met only one such case in the Westphal epidemic. In the Boston epidemic 10 per cent. of 628 patients recovered completely. In a smaller group of 150 patients who were carefully examined 25 or 16.7 per cent. recovered completely (R. W. Lovett). The prospect of improvement in the paralyzed limbs is good, although regeneration of the destroyed ganglion cells is not to be hoped for. The causes of death are the toxemia, cerebral complications, such as meningitis, and respiratory paralysis.

TREATMENT

As no specific is known, treatment must be symptomatic. Treatment suitable to an infection and toxemia should be promptly instituted. The bowels should be emptied by calomel and a saline and by colonic flushing, whether diarrhea or constipation be present. Elimination by the kidneys should be stimulated by a suitable alkaline diuretic, such as liquor potassii citratis. Salicylates may be given both for the relief of the pain and as being antagonistic in a general way to infections. The patient should be confined to bed and kept warm and comfortable. In view of the marked tenderness, Hohmann has recommended the application of a plaster cast. Gowers recommends that the patient be not permitted to lie on the back on account of the danger of increasing the congestion in the spinal cord. If a position on one or the other side is impracticable, pillows against the back will raise the spine from the lowest position and save the inevitable hyperemia from being augmented by the effect of gravitation. Strychnin should not be given until after the first two or three weeks. Electricity should be deferred a little longer. Gentle massage may be commenced sooner by upward rubbing with such pressure as causes no pain. Kneading of the muscles is better avoided. Re-education of the muscles by encouraging the child to use the paralyzed limbs should be begun after the acute symptoms have subsided. In this way other groups of muscles may be made to perform more or less perfectly the functions of those permanently paralyzed.

Therapeutics

CHRONIC ARTHRITIS

Whether one or more joints are in chronic trouble, or whether the disease is more general as in arthritis deformans, or whether the trouble with the joints is due to gout, chronic arthritis is one of the most troublesome, unsatisfactory, and discouraging conditions to treat. Anything that will cause a better understanding of the etiology of the condition will not only lead to its prevention before actual lesions of the joints have occurred, but will often aid in producing a cure or stay of the disease if the etiologic factor can be removed.

Dr. Hermann W. Marshall (*Johns Hopkins Hospital Bulletin*, July 1910) discusses this troublesome subject, and reminds us "that joint symptoms occur in constitutional infections and nervous diseases, and that their causes are manifold, and moreover the various etiologic elements do not act on a simple tissue, but on a complex structure including bone, cartilage, connective tissue, nerves, synovial membranes, blood capillaries, and lymphatics." As a result the bone may atrophy or hypertrophy, cartilage may be destroyed, there may be thickening of the fibrous tissue, there may be localized edemas or actual effusion into the joints, there is always stiffening and pain, and there may be ankylosis.

Marshall emphasizes the importance of the character of the blood, as it by bringing irritants to the joints, becomes an important factor in the cause of joint disturbances. Besides these chemical irritants, disturbances in the nervous system can reflexly affect joints, and the joints may be disturbed by physical conditions, pressure, sprains, etc. In any particular instance any one of these three factors may act in varying degree, and also Marshall believes that one or more joints may have their vital resistance reduced so as to be susceptible to what another joint may withstand.

Irritating substances in the blood that may injure joints are "chemical products of bacterial growth, chemical products derived from the gastro-intestinal tract, metabolic products of organ activities, and drugs such as lead." Bacteria may locally infect a joint and produce substances that are irritant. Ptomains circulating in the blood may irritate joints as seems proved by the fact that eradication of ptomain infection from the gastro-intestinal tract and a modification of the diet to prevent further ptomain poisoning or ptomain production has immediately relieved joint pains. While we cannot exactly define or chemically describe a toxin, Marshall states that these are formed by the action of bacteria on nitrogenous food materials, and certainly it has been shown that the removal of all such toxins from the system has many times entirely removed and prevented joint pains. In other words, there seems to be no question that irritants (whether the actual chemical substance produced by bacteria, or whether toxins from bacterial activity, or ptomains absorbed from the intestines) can cause joint pains often general, perhaps localized in joints that are physically disabled, and have their withstand power temporarily reduced. The removal of such intestinal malproducts cures the joint pains.

Marshall believes that the products absorbed from bacterial action in the colon, and from the stomach and intestines under pathologic conditions without bacteria, are causes of joint irritations. Certainly clinically, as he states, many a chronic arthritis patient gives no antecedent except chronic indigestion. Visceral displace-

ments causing indigestion without any apparent bacterial infection have been accompanied by joint disturbances and the joint disturbances have become better when the displacements were corrected. Marshall states that when chronic indigestion seems to be an etiologic factor in joint inflammations generally the bone hypertrophies, which seems to indicate a different kind of irritant from that produced by bacterial toxins which lead to destructive atrophic bone changes.

Hyperactivities or disturbed activities of the organs or glands of the body seem to frequently be the cause of joint irritations. This is sometimes noted after pregnancy, in thyroid disturbances, and pancreatic disturbances. It is certainly true that the beginning of gouty joints and sometimes of arthritis deformans dates from the cessation of ovarian activity.

When disturbances of the nervous system affect the joints, as Marshall well says, it can hardly be a simple proposition. If an individual nerve to a particular joint or set of joints is in trouble it can readily be understood how tropic changes in the joints take place; or if a particular portion of the spinal cord is affected how the joints that are ennervated by that portion may become so disturbed as to show signs of irritation and inflammation. In general nervous conditions, however, the organs concerned in digestion are greatly disturbed, intestinal indigestion occurs and the absorption of irritants may take place, and these irritants may be the cause of joint disturbances in many nervous diseases.

Mechanical injury to the joints whether irritation, pressure, over-work, or insufficient circulation from some old injury, or anything that disturbs the nutrition of a particular joint or set of joints may become causes of chronic arthritis.

A thorough investigation of an individual patient who has chronic arthritis, with all of these etiologic suggestions in mind, will discover the best possible treatment and the treatment that promises most for the individual. It certainly is useless to direct a local treatment or even a general treatment without first endeavoring to remove the etiologic factor, if such a factor can be removed. If the diseased joints incapacitate a patient for work or exercise, compelling him to live a sedentary life, maldigestions are bound to take place, and irritants in the blood will be ever present, if not actually on the increase, and the arthritis must progress. Prevention, then, of gastro-intestinal indigestion and the regulation of the diet in such a way as to assure the least possible absorption of toxins or chemical irritants is of primary importance. Although not mentioned by Marshall, it seems very necessary to study, by examinations of the feces and examination of the twenty-four hours' urine, the ability of the patient to digest the different kinds of food and properly to excrete the various salts, and to limit his diet to those which he properly cares for and to remove a food or salt, or diminish it at least, that he did not normally digest, metabolize or excrete. The amount of water a patient should drink seems to be another important factor in aiding the cure or prevention of progress of the joint affection. A blood count is also necessary. Many patients are anemic; many not. Many such patients have disturbances of the white blood corpuscles which should be noted. Worry, nervous frets, and all excitement that tends to neurotic conditions should be prevented, if possible. Here is one of the greatest values of temporarily removing a patient who has a number of joints affected, showing that there is a general cause for the trouble, to a private hospital or sanatorium for treatment. Serious nervous affections give, of course, a serious prognosis to the joints affected.

Various measures for producing local hyperemia are valuable. If the disease is more or less general nothing is any more valuable than body baking, the so-called hot air treatment. It increases elimination through the skin, promotes the circulation of the surface of the body, relieves pain, and increases the activity of the circulation in the joints. It also relieves the congestion of the internal organs and therefore is an aid to digestion. If the general circulation is poor the baking should be done under careful supervision, to promote the circulation, and not to have the baking so frequent or so prolonged as to debilitate the patient. If properly managed this baking is of the greatest aid in helping these patients. If the disease is localized in one or more joints repeated local baking may be valuable, but often does no good, and may do harm. If there is no improvement after a certain length of time certainly the treatment should be discontinued.

The production of localized hyperemia in certain joints by bandaging, the Bier's treatment, may be of value, but often in chronic conditions it is of no value. Active massage and passive movements may be of great value. Various electric stimulations to the spine may be of value in individual patients, but often probably do more good psychically than physically. Electric light bath treatments and various hydrotherapeutic measures all have their value and all do good. Whether a joint should be immobilized or not is a question for careful decision. If there is acute inflammation it should probably be temporarily immobilized. Sometimes such immobilization will almost produce a cure, and again a joint becomes stiff and is really injured. Such fixation treatments, then, should be carefully considered before they are inaugurated.

Medicinal treatment, except such treatment as is aimed to promote digestion, proper bowel activity, proper circulation, and proper character of the blood, is of little value. If there is thought to be hyperacidity of the secretions or at least decreased alkalinity, alkalies may be of value, but certainly alkalies should not be pushed to the point of interfering with stomach digestion. Salicylates are of but little value in chronic joint disturbances. Iodids in large doses will produce waste, and may be what a fat patient needs. Small doses of iodid stimulate the thyroid to extra activity, promote general metabolism, and may be of value in the individual case. Colchicum in chronic arthritis is probably of little value except as it may increase intestinal activity. All of the various lithia salts, and all of the various laxative and alkaline waters have no specific action, but if combined with increased muscular activity, increased activity of the skin, increased drinking of water in proper selected cases, a regulated diet and a regulated life, in other words, proper regime, they may be of apparent benefit. It is the regime, however, and not the particular kind of lithium or other salt that works the cure.

Let it be urged that a physician cannot spend too much time in the study of a patient who shows beginning chronic arthritis, to endeavor to prevent the progress of the disease and to prevent a life of more or less invalidism. No matter how tedious, and no matter how expensive it is for the patient to be scientifically studied in this condition, it will pay him and his physician for the outlay to arrive at the best management of his disease.

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[For other information see second page following reading matter]

SATURDAY, SEPTEMBER 17, 1910

THE CHARACTERISTICS OF IMMUNITY IN SYPHILIS

Before the discovery of the *Spirochæta pallida* (*Treponema pallidum*) by Schaudinn there exists a reasonable suspicion that the then unknown parasite of syphilis was one which passed through distinct cycles of development within the human host, thus accounting for the differences in the lesions observed in the classical three stages of the disease. This explanation for the variations in the lesions of syphilis collapsed with the earliest investigations made after the causative organism had been identified, for it was at once found that there was no difference in its appearance and characteristics whether it was examined in chancres, secondary eruptions, congenital lesions in deep-seated organs, or even in tertiary lesions, where it can be found sparsely distributed. Later investigations supplemented the evidence of morphologic identity by showing that biologically the organism is the same, since syphilitic material from lesions of any stage when inoculated into susceptible anthropoids gives rise always to the same sort of lesion, the primary chancre. From an extensive study of the historical facts and experimental investigations, with particular reference to the immunologic process of the disease, Levaditi of the Paris Pasteur Institute has developed an interesting and plausible conception of the processes which follow infection with syphilis, and which cause the peculiar development in stages that characterize its course in man.[1]

While it is universally recognized that a strong degree of immunity is developed in syphilis, yet it is also recognized that this immunity is not absolutely protective and that it manifests itself in various ways. Persons with a definite history of syphilis may again acquire a primary lesion and develop the usual sequence of manifestations, and an individual may have multiple primary lesions, but neither of these occurrences is common. As a rule the existence of syphilitic lesions, whether active, quiescent or apparently healed, guarantees the individual against a new infection, and numerous actual experiments have established this protection. Now this condition of resistance to infection in syphilis is somewhat peculiar, in that at the same time the protected individual may be, and usually is, harboring living organisms which may even be actively engaged in causing injury to his tissues. This is quite different from the ordinary conception of immunity, which implies that the immunity is the result of a refractory state incompatible with the life of the infectious agent. As a matter of fact, the immunity in syphilis is really not absolute but relative; during the period of incubation, and during the early stages of the history of the chancre, a second inoculation may result in the formation of more or less typical primary lesions; the later in the disease the less frequently and less typically will successful results be obtained. After the chancre is well developed, and during the secondary stage, inoculation with active virus under the skin may produce atypical lesions, or lesions resembling those of the secondary stage, although to such doses of virus as are commonly received by natural means of infection there will usually be no reaction. In the tertiary stage there is almost absolute insusceptibility to infection by inoculation, either natural or artificial, in spite of the fact that at the same time within the tissues a localization of a very small number of organisms coming from the patient's blood will produce large, rapidly spreading lesions, with great destruction of tissues, the gummas.

These apparently contradictory facts Levaditi explains in the following hypothesis: During the period of incubation, and before the primary sore appears, the parasites invade the body, for during this stage in experimental animals the virus can be found in the internal organs, particularly the spleen. This invasion causes the development of immune bodies, which soon are manifested by a partial refractory condition of the skin to further infection by natural exposure to syphilitic virus; this resistance is slight during the early stages of chancre formation, but is well developed by the time of the onset of secondary lesions, although not usually so complete that it may not be overcome by inoculation with a sufficiently large quantity of active virus. During the secondary stage we find that the lesions are chiefly of an inflammatory character, with evidence of great resistance by the tissues, which suffer comparatively little injury, in spite of the presence in these lesions of very great numbers of parasites; whereas in the tertiary stage, when the resistance to infection coming from without is highly developed, the lesions show great tissue destruction produced by an extremely small number of parasites.

Since the parasite seems to be the same in all conditions and stages of the disease, the differences in the effects produced are to be accounted for by differences in the resistance of the host to the invading organism. Levaditi suggests that the resistance developed during the primary stage may be sufficient to hold the parasites in check for a time, until they acquire a certain degree of immunity of their own to the antibodies of the host; they then enter the blood and set up a generalized

1. Levaditi, C.: De l'immunité acquise dans la syphilis, Ztschr. f. Immunitätsforsch. Referate, 1910, ii, 277.

infection, characteristic of the secondary stage. In reaction to the infection of this stage greater quantities of antibodies are formed, which suppress the growth of the parasites to a large degree, although not destroying all of them. In the course of time the tissues themselves, however, may acquire a hypersensitive condition, so that even a few spirochetes may be able to cause extensive local necrosis, characteristic of the gumma of the tertiary stage. It is of course possible for the host to develop sufficiently great amounts of antibodies to destroy all the infecting organisms, thus accounting for those cases in which one or both of the last two stages of the disease are not manifested. Tertiary lesions as a rule, however, develop in spite of a highly developed resistance to the parasites of syphilis, which is shown by the difficulty or impossibility of producing a new infection by inoculation with new virus; presumably, therefore, the lesions of the tertiary stage are produced by organisms which are refractory to the antibodies of the host, but which are growing in tissues that have become hypersensitive or anaphylactic to the syphilitic virus. On this basis the efficiency of iodids in the tertiary stage would be ascribable to their action on the tissues, which they render less sensitive, or antianaphylactic, rather than to an action on the parasite comparable to that of mercury in the earlier stages.

These speculations of Levaditi have much to commend them as worthy of serious consideration, and to those who are familiar with the features of infection and immunity manifested in the trypanosome and spirillary diseases, on which much of Levaditi's reasoning is based, they will seem to be well grounded and far from visionary.

A NATIONAL DEPARTMENT OF HEALTH

Since the introduction in the Senate, by Senator Owen, of the bill providing for the establishment of a federal department of health, there has been much discussion in both the scientific and the secular press regarding the proposed measure. Several congressional committee meetings have been held at which appeared those favoring and those opposing the measure. Both proponents and opponents, however, at the committee meetings and in the public press, have dealt largely in general statements. No definite scheme has been submitted as a basis of discussion or action; and only general—and in the main irrelevant—objections have been advanced. This week we publish an article by Dr. Young, who for twenty years has been connected with one branch of the government health work. In this article the question is presented in its broader aspect. So far as we are aware, this is the first attempt that has been made to bring together and to present in concrete form the various activities, relating directly or indirectly to public health, carried on in the several departments of the government.

A careful reading of the paper reveals two important points. First, while the government is doing a large amount of excellent health work, its efforts are scattered and more or less duplicated, and, in the interest of economy and of far more effective ultimate results, the various enterprises, so far as practicable, should be coordinated and brought under one general head. Second, the problem of unifying all these enterprises and bringing them into one department or bureau is not so complex as some suppose, and yet it is a problem whose solution should not be attempted without careful study of existing conditions in order that reorganization may not result in halting or hindering some of the good work now being done.

As the first definite outline of a national department of health, Dr. Young's article is deserving of careful and critical study. Probably few will agree with him in all his conclusions, but the paper will serve as a basis for that common-sense, dispassionate and logical discussion of the problems involved which is needed if we are to secure satisfactory constructive legislation. The importance of the subject and the necessity of a provision for the health of the public are admitted by all—all, that is, except those having a faddistic or mercenary interest in the perpetuation of existing conditions. The only question on which there is any room for a difference of opinion is: In what way should the government's health activities be organized so as to result in the highest good to all the people?

The organization of a new department of our national government is an administrative problem of great importance, which can scarcely be solved by sweeping general statements. Dr. Young's contribution is of great value, especially in that it offers a tangible basis for discussion and can be taken as a starting-point for actual constructive efforts.

THE PURIFICATION OF WATER BY STORAGE

It has long been known that when cholera vibrios or typhoid bacilli are added to raw river water under laboratory conditions of experiment these pathogenic microbes die off rather rapidly; over 99 per cent. of the two species mentioned are destroyed within the first week. The inference seems justified that the longer a contaminated water can be kept from reaching the consumer the less likely is it to be the bearer of infection. The time element is probably more important than any other in the familiar process of the self-purification of streams, and its effect is particularly marked when water is retained for any considerable period in storage reservoirs.

In some cases the principle of purification by storage has been recognized and taken advantage of by the officials in charge of municipal water-supplies, but, on

the other hand, storage has been looked on often merely as a safeguard against drought and has not been utilized to its full value as a protection against water-brone infection.

This seems, for example, to have been until recently the case in London where, it is stated, the two large Staines reservoirs with a total capacity of 3,338 million gallons had their inlet and outlet pipes in the same towers, thus rendering impossible any proper circulation of the water. The work of Houston,[1] however, has drawn attention to the influence of storage on the character of the London supply, and should go far to make the beneficial effect of water storage more generally appreciated.

Briefly speaking, storage reduces the amount of suspended matter, the amount of "free ammonia" and of "oxygen absorbed" and removes some of the color; the hardness also is usually decreased. The number of bacteria of all sorts is diminished by storage, and this diminution is especially marked in case of the excremental bacteria, including the typical *Bacillus coli*. Indeed, Houston's work demonstrates that storage "reduces the number of typical *B. coli* to a proportionately greater extent than it reduces the number of bacteria of all sorts." As a prefiltration process it lengthens the life of the filter and produces uniformity in the character of the water delivered to the filtration beds.

The important fact is brought out also in the Report of the Metropolitan Water Board that London is not really drinking filtered raw river water, but river water which by storage processes has been bacterially purified to a remarkable extent antecedent to filtration. In spite, therefore, of the somewhat unsavory origin of much of the river water which serves as the source of the London supply, the water actually distributed to the consumers is of a high degree of bacterial purity. It seems very unlikely that any noteworthy portion of the typhoid fever in London at the present time is water-borne. At all events the death-rate from this disease is as low (3 per 100,000 inhabitants in 1909!) as in those cities that are provided with a supply of known and unexceptionable purity.

Curiously enough, some of the English authorities now appear inclined to attribute more importance to storage than to filtration in the purification of polluted river water. It does not seem necessary, however, to place the two processes in antithesis. Sand filtration, even when a raw and rather highly contaminated water is directly applied to the filter bed, has abundantly demonstrated its efficiency as a means of reducing typhoid infection. But it is indeed true that the beneficial effects of storage need to be just as widely known; in many cases this important process of purification can be taken advantage of with safety and economy.

1. Report of the Metropolitan Water Board, 1905-1910.

Current Comment

THE DISINFECTION OF THE HANDS OF TYPHOID CARRIERS

The well-known difficulty of checking completely and permanently the excretion of typhoid bacilli from the bodies of "carriers" is leading to a search for other measures likely to avoid or lessen the danger to the community which is involved in the existence of these "walking germ-factories." Obvious measures are the prohibition to them of certain occupations, and instruction in habits of personal cleanliness. The motive for the latter precaution is readily found in the high degree of peril to which the family and immediate associates of the carriers are exposed. Clear and emphatic descriptions of the consequences to family and friends likely to follow from neglect will in many cases lead to willing compliance with instructions. The most effective method of obtaining hand-disinfection is made the subject of a recent study by Gaehtgens,[1] a writer well known for his researches in connection with the intensive campaign against typhoid in the Rhine provinces. In this study, hands soiled with the infectious material have been subjected to various cleansing processes and then carefully tested for the survival of typhoid and colon bacilli. Thorough washing with soap and water, especially when followed by rinsing in fresh water and wiping on a clean individual towel, diminishes enormously the danger of infection and may in some cases lead to entire removal of the intestinal microbes from the infected hands. Since in some cases, however, this procedure does not effect complete removal of the adhering germs, Gaehtgens recommends for greater security the use of some disinfectant. In his experiments formaldehyd soap solution, alkaline hypochlorite solution, hydrogen peroxid and even phenol proved unsuitable for the purpose, but good results were obtained with alcohol, especially in the form of eau de cologne and the ordinary cooking alcohol (*Brennspiritus*).

FISH AS FOOD

The enhanced cost of living in all civilized countries has directed attention to the less expensive forms of food. It has been said that the production of wheat is not keeping pace with the increase in population and that some more productive substitute must be found for it. Meat, likewise, for reasons not to be discussed here, is becoming relatively scarcer, and consequently so much more expensive as to portend at no distant time its compulsory partial abandonment as an article of diet by the poorer portion of the population. A more extensive use of fish has been suggested as one way out of the difficulty. As reported in our London Letter, at a recent meeting of the Sanitary Inspectors' Association in London, Sir James Crichton-Browne remarked on the value of fish as food, especially for the poor; from a physiologic standpoint it ranks second only to meat, containing somewhat less of protein but often more fat, while being far less expensive. Salmon is found the equal of lean

1. Arch. f. Hyg., 1910, 73, p. 233.

meat in food value, and a pound and a half of cod is equal in nutritive value to a pound of lean beef, while the cost is very much less. Improved transportation facilities and methods of distribution make fish available as food to a much wider extent than formerly. At present, on account of fashion, prejudice, taste, etc., many of the coarser kinds of fish are tabooed, although of equal or greater nutritive value than those that are more popular. With present measures of conservation of fish and fisheries extended, along with the conservation of our other natural resources, and with proper encouragement in the use of this form of nitrogenous food, there would be an enormous development in the fishing industry and an accompanying economic saving to the people, while still maintaining the public health by a high plane of living in the presence of a waning meat supply.

TWO REMEDIES FOR RACE SUICIDE

"The best crop is the baby crop," said Mr. Roosevelt at Ames, Iowa, recently. True, but what shall it profit a nation if it produce ever so large a crop of babies but fail to keep them alive until they grow to years of maturity and usefulness? That nation is the strongest which has the largest number of mature, healthy and capable men and women. Mr. Roosevelt has done great service in decrying race suicide and urging a larger birth-rate. There are, however, two ways in which a nation can annihilate itself. One is by a diminishing birth-rate and the other is by an increasing death-rate among infants and young adults. The child which dies before it reaches maturity is a dead loss to the community. If Mr. Roosevelt will take up, with his accustomed vigor, the conservation of existing lives, in conjunction with his campaign for an increase in the number of new lives, as a combined remedy for race suicide, he will aid a growing and inevitable reform and will vastly increase the obligations of the country to him for his services.

ITALIAN IMMIGRANTS AND TUBERCULOSIS

It is reported that tuberculosis is increasing in Italy, and the reason given is that many of the immigrants returning from the United States are consumptive. How much increase there is, and how much truth there is in the statement that the increase is due to the immigrants from America, we do not know. It would not be at all strange, however, if there were some foundation of facts to warrant the statement. Most of the immigrants from southern Italy have been country laborers at home. When they reach this country, they swarm to the slums of our large cities, and naturally become easy prey to tuberculosis and to other diseases favored by the new conditions and modes of life. In their native country they lived chiefly in the open air under a mild and equable climate, where they were less subject to direct infection, to artificial conditions of life, and to violent extremes of temperature; their new life in all its phases is conducive to the changing of healthy men into consumptives. It would be better for these Italian immigrants, as well as for us, if they would go into the agricultural districts, where they are really more needed and where they would be better off physically and in every other way. That the Italian immigrant, established in a suitable rural environment, and in a climate not too unlike that of his native country, is capable of becoming, with little assistance, a self-sustaining and useful citizen, is shown by the success of the Italian colony of St. Helena in North Carolina.

UNHYGIENIC CIGAR-MAKING

A matter worth the attention of health authorities is afforded by the custom among cigar-makers of biting off the tobacco at the end with their teeth and finishing the cigar by plastering down the outside leaves with saliva. We cannot say how extensive this custom is, but from our acquaintance with cigar-makers it appears to be not uncommon. The excuse given for this insanitary method is that, while the managers do not actually demand it, it is practically impossible to finish a cigar to meet the demands of the foremen without resorting to it. The practice if generally known ought to diminish the sale of cigars on esthetic considerations alone, to say nothing of the very obvious danger of the transmission of disease—tuberculosis, for example, which is quite prevalent among cigar-makers. The practice is injurious not only to the customer, but to the workman as well. The frequent occurrence of functional stomach disease, among them, chiefly hyperchlorhydria, is at least greatly favored by this practice.

EPIDEMIC POLIOMYELITIS—INFANTILE PARALYSIS

We have received many requests for information on various points regarding poliomyelitis, showing the desire for more information than is to be found in the majority of text-books. These requests have come from all parts of the country, emphasizing what is known to be a fact—that this disease is epidemic in many localities. On account of this desire for information, we have prepared, and publish this week, a short article on the subject. In addition there is in this issue an abstract of a paper by Robertson and Chesley on the pathology and bacteriology, and an article by Silver on the surgical treatment, together with the discussion which took place thereon in the Section on Nervous and Mental Diseases at the St. Louis session of the Association. From the history of the past few years it would seem that the disease is increasing in frequency; it is certainly a subject that needs the most careful thought on the part of the hygienist and of the family physician. The public should be taught that the disease is a contagious one. While this contagiousness may not be great—probably one-quarter as great as that of scarlet fever—the danger is sufficient to justify the isolation of actual and suspected cases. The disease should be reported, and health officers should endeavor to make clear the dangers which are sufficient to warrant moderate quarantine. Probably the infectious period does not extend much beyond the acute period. The observations of

Flexner that the mucosa of the pharynx contains an unusual proportion of the virus would indicate that the secretions of the throat may form one of the sources of the infectious material. Further investigation should be directed to the possibility of conveyance of the virus by the feces, urine and perspiration. Physicians should impress on their clientele the importance of prompt medical supervision in cases of acute intestinal disturbances in children in localities in which the epidemic is prevailing. Careful records of such cases should be kept, so that if poliomyelitis develops, the preliminary symptoms could be carefully reviewed. It is by such careful observation of the preliminary symptoms by a large number of observers that we may hope to learn more of the initial symptoms than is now known; this will assist in the early diagnosis of the disease. Next week we shall publish a paper from Dr. Flexner, in which he reviews the experimental work on the disease and what it has revealed.

Medical News

CALIFORNIA

Personal.—Dr. A. Miles Taylor, San Francisco, chief surgeon of the Northwestern Pacific Railroad, gave a dinner August 27 to the surgeons of the road who had been in attendance at the meeting of the Pacific Railway Surgeons' Association.——Dr. Charles W. Decker, Palo Alto, is said to be seriously ill with rheumatism in San Francisco.——Dr. Louis P. Howe, San Francisco, has been appointed local surgeon of the Western Pacific Railroad for San Francisco and vicinity.

Stanford Adds to Medical School.—A number of additions are being made to the medical school at Stanford University. Last year one wing of the museum building was set aside for an anatomy building, and this year two additional wings are being used, one to be devoted to bacteriology under the charge of Dr. Hans Zinsser, a newly appointed member of the faculty, and the other to pharmacology under the charge of another new member of the faculty, Dr. Albert C. Crawford.

Items About Hospitals.—A new hospital is to be erected on the east side of Stockton by the San Joaquin Hospital Association, to cost about $75,000. The hospital will occupy a site of eight or nine acres, and it is said subscriptions amounting to $50,000 have already been secured.——A new hospital is soon to be opened at Visalia in the former home of Dr. Neame. It has been purchased and remodeled at a cost of about $30,000.——Articles incorporating the Oakland Maternity Hospital, with a capital stock of $15,000, have been filed with the county clerk of Tulare county.——The work of construction on the Kings County Hospital, Hanford, was started August 1.——Dr. Albert J. Elliott has formed a company with a capital stock of $50,000 to build and conduct a hospital for helpless invalids, under the name of the San Diego General Hospital Company.——The Pacific Lumber Hospital, Scotia, was incorporated August 20.——The King's Daughters of Oakland are making earnest efforts to secure the $42,000 required to build the new building of the California King's Daughters' Home for Incurables.

COLORADO

Personal.—Dr. Henry W. Rover, Denver, has returned after six months' travel in Europe.——Dr. and Mrs. Horace G. Wetherill, Denver, left September 3 to attend the International Congress of Obstetrics and Gynecology in St. Petersburg.——Dr. Thomas Danahey has resigned as resident physician at the Denver County Hospital.——Dr. Robert S. Allen, physician of Denver County, is recovering from appendicitis for which he was operated on August 23 at St. Luke's Hospital

GEORGIA

District Society Meeting.—The sixth semi-annual meeting of the Fourth District Medical Society will be held in Pinedale, September 20, under the presidency of Dr. T. Neal Kitchens, Columbus. The program shows several interesting titles, such as "Christian Science, the Religio-Medical Masquerade," "Why a Physician Should Identify Himself with the Medical Society," "Professional Courtesy," and "What a General Practitioner Ought to Be."

The La Grange Sanatorium.—The legislature of Georgia has appropriated $30,000 for completing the buildings of the La Grange Sanatorium, and $20,000 for maintenance of the institution for 1911. At the meeting of the executive committee of the trustees, held in Atlanta August 27, plans were perfected for completing the buildings and preparing for patients. They hope to have the institution ready to receive patients January 1, and expect to be able to accommodate 100.

ILLINOIS

Patten Helps Hospital.—George W. Patten, Evanston, has donated $500,000 to the Evanston Hospital Association. The gift creates the "Agnes and Louisa Patten Fund" and is to make up a part of the endowment fund of the institution, only the income of which can be used.

Personal.—Dr. and Mrs. A. D. Bridgman, Decatur, celebrated their golden wedding anniversary August 31.——Dr. Herbert C. Jones, Decatur, has returned from Europe.——Dr. Porter W. Hopkins, Cullom, has sailed for England.——Dr. Hiram T. Hardy, Kaneville, who was operated on for the removal of gall-stones August 27, is reported to be doing well.

The New Cook County Hospital.—A plaster cast model of the new Cook County Hospital, for which $3,000,000 has been appropriated, shows the twelve proposed new structures, six medical buildings, two surgical buildings, one administration building, a detention building, a pathologic building, and a morgue. Among the features of the plans submitted by the committee are roof gardens on the ward buildings and outdoor camps for tuberculosis patients.

Chicago

Personal.—Dr. and Mrs. Arthur Dean Bevan have returned from Europe.——Dr John Edwin Rhodes has returned from a month's outing in British Columbia.——Dr. and Mrs. David Fiske have returned from Europe.

Increases Requirements.—Northwestern University announces that the requirements for admission to its medical school hereafter will be two years in college. Under present conditions students registering for the medical department are required to show only one year of college work. The new plan is expected to go into effect next year.

Increased Death Rate.—The report of the Department of Health for the first eight months of 1910 shows 22,808 deaths as compared with 20,822 in the first eight months of 1909, an increase for the year 1910 of 1986 or 6 per cent., the respective annual death rates per 1,000 being 15 and 14.1. The chief increases noted were pneumonia from 3,372 to 4,133, an increase of 761, and diarrheal diseases of infants, from 1,876 to 2,265, an increase of 389.——During the week ended September 9, 27 new cases of diphtheria were received at the Isolation hospital and 100 cases were reported.

Ground Broken for Jewish Hospital.—Orthodox Jews raised a sum estimated at $10,000, September 11, at the groundbreaking ceremony for the establishment of the Maimonides Kosher Hospital, at South California and Ogden avenues. The chief privileges sold were turning of the first clod of earth, placing the name on the golden scroll, and burning the mortgage. The building is to be six stories high, will cost about $175,000, and will accommodate 175 patients, 75 of whom will be free patients. The first wing of the hospital is expected to be completed in less than a year.

IOWA

Hospital News.—The Sisters of St. Francis of the Home for the Aged, Dubuque, are having constructed a new chapel and hospital addition which will be completed in about two months. The hospital will be for the use of sick sisters of the order and for those advanced in years and unable to work.——The lease of the LeMars Hospital having expired, the hospital has been closed.

Personal.—Dr. George Donohoe, assistant physician at the State Hospital, Independence, has been appointed superintendent of the State Hospital for Inebriates, Knoxville, vice Dr.

Herbert S. Miner, resigned.——Dr. John A. White, Olin, who was operated on at a sanitarium at Anamosa, August 18, for gall-stones, is reported to be doing well.——Dr. Henry G. Langworthy is building a private infirmary at Dubuque.

KENTUCKY

Personal.—Dr. Ernest B. Bradley, Lexington, city bacteriologist, has been appointed health officer of Fayette County, vice Dr. William J. Foley, deceased.——Dr. Porter Prather, Lexington, has been elected a representative of the fiscal court of Fayette county.——Dr. John B. House, Scottsville, is reported to be critically ill.

Will Label Adulterations.—As a result of the prosecutions of the local ice cream dealers charged with alleged violations of the pure food law a compromise has been effected between R. M. Allen, chief of the State Pure Food Department, and the attorneys for the ice cream dealers by which the dealers agree to label all of their products which contain gelatin, coloring matter, etc.

Convicted of Manslaughter.—In the case of the state against Dr. Fred D. Marcum, Louisa, charged with killing John Whittaker, the jury is said to have brought in a verdict of manslaughter and fixed the punishment at seven years' imprisonment in the penitentiary. The killing occurred on a train two years ago, when Dr. Marcum was marshal of Louisa, and was requested by the conductor to arrest Whittaker and three companions for alleged disorderly conduct. They resisted arrest and in the fight which followed, Whittaker was fatally shot. At the first trial the jury disagreed.

Asks Modification of Ruling.—The Shelby County Dairymen's Association has passed resolutions asking the State Board of Health to modify its recent ruling which requires a dairyman in whose barn cows affected with tuberculosis have been found to have it disinfected by an inspector selected by the State Board of Health and paid for by the dairymen at the rate of $10.00 per day for the time so employed. The dairymen claim that they are willing to do all the necessary disinfecting, but protest against the employment of the State Board of Health inspectors as an unnecessary expense. They contend that the work can be done just as thoroughly and at much less cost by the county boards of health. Their resolutions state that they are willing to have their barns disinfected according to the rules laid down by the State Board of Health, by and under the direction of the county board.

Water Supply and Typhoid.—An interesting report has been published by the superintendent of the Louisville Water Works which shows the percentage, for the past four years, of deaths from typhoid fever in the city. The filter plant of the Louisville Water Works was put in operation in August, 1909. The deaths from typhoid fever in 1906 were 137, for 1907, 168, for 1908, 109, and for 1909, 96, the average death rate for the four years being 128. For the year ended August 1, 1910, in which the filter was in operation the total number of deaths from typhoid fever was 73. It is estimated that the mains of the water works system were fairly well cleaned by November, 1909, and that only filtered water circulated through them. The total number of deaths from November 1, 1909, to August 1, 1910, was 38. Comparing these figures with previous years shows a reduction of 60 per cent. in the number of deaths from typhoid fever over the average of the preceding years.

Proposed New City Hospital.—The Hospital Commission of Louisville has submitted a report to the mayor in regard to their plans for the proposed new million-dollar hospital for the city. It recommends the present site of the hospital for the new building because of the central location and easy access, and condemns the present hospital as being far below a modern public institution. With an estimated population of 240,000 the commission recommends a building of not less than 350 beds. The present location comprises about 6 acres. The new building is to be provided with well equipped laboratories; of fire-proof construction; roofs arranged for out-door air and sunlight for convalescents and the building to be a modification of the condensed and pavilion plans. A special department is to be provided for insane patients pending their commitment to asylums. Ample accommodations for the out-patient department with baths and lockers is planned. A mortuary chapel and pathologic building are also arranged. A separate power house and nurses' home will be provided for in the plans. Ample arrangements will be made for the housing and care of patients at present in the hospital before the building is demolished.

MARYLAND

Personal.—Dr. Lewis Mines Allen, associate professor of obstetrics in the University of Maryland, has resigned to engage in general practice in Winchester, Va.——Dr. Francis E. Harrington has been appointed secretary of the board of health of Cumberland.

Better Medical Practice Act Wanted.—The *Bulletin of the Medical and Chirurgical Faculty of Maryland* discusses the evils of the medical practice act in Maryland, and starts an agitation for "a new model practice law the central plank of which should be the single-board idea" . . . "After the brilliant series of successes achieved by the faculty during the last session of the legislature, there can be little doubt that the lawmakers who will assemble at Annapolis in 1912 will enact into law any essentially good medical practice act which has the support of a united medical profession."

Baltimore

The Floating Hospital for Sick Babies.—Dr. F. Martin Brunn has arranged to deliver a series of illustrated lectures on the need of a floating hospital for sick babies. His idea is to have one or two barges for this purpose towed by tugs, and estimates the initial expense at $20,000 and the annual expense at $20,000.

Personal.—Dr. James Bordley has returned from a thousand-mile automobile trip through the middle states.——Dr. John T. Powers has resigned from the staff of the Bayview Hospital.——Dr. G. Milton Linthicum, who has been ill with typhoid fever, has had a relapse and returned from Atlantic City to the Maryland General Hospital, September 5.

MASSACHUSETTS

New Ruling on Liquor Law.—In the District Court of Middleboro, August 20, Judge Allan gave a new interpretation of the liquor law of the state, when he decided that a Middleboro druggist who sold liquor on a prescription from a Bridgewater physician had violated the law, and that the Bridgewater physician could not be held to be practicing in Middleboro unless he had an office in the latter town.

Personal.—Dr. Charles H. Fessenden, Newton Center, has been elected director for the New England Division of the North American Esperanto Association.——Dr. Thomas F. Harrington, Boston, director of school hygiene, has returned from Europe.——Dr. John T. Cahill has been elected mayor of Lawrence.——Dr. G. S. Dodds of the biologic laboratory, Woods Hole, has been appointed a member of the faculty of the Medical Department of St. Louis University.——Dr. Francis H. Slack, director of the bacteriologic laboratory of the Boston Health Department, has resigned to accept an appointment as instructor of bacteriology of the Kansas State College, Manhattan.——Dr. Winfred O. Wilder has been appointed medical inspector of schools of Pittsfield.

MICHIGAN

Personal.—Dr. Herbert W. Yemans, Detroit, has been elected vice-president of the North American Esperanto Association.——Dr. R. Grace Hendrick, Jackson, is going to Europe.

Work of County Antituberculosis Society.—The Houghton County Antituberculosis Society, which is making a request for funds for the furtherance of its work, states that the visiting nurse employed now has 82 patients under her care. Of these 25 are sleeping in the open air under the advice and direction of the society. Since the establishment of the service in February, 20 patients have died; 5 families have been moved to more sanitary homes, and 12 families are receiving daily from one to two quarts of milk provided by the society or by the Associated Charities of Calumet.

NEW JERSEY

Personal.—Dr. and Mrs. Walter Reynolds, Atlantic City, sailed for Europe September 10.——Dr. M. Jones Luffbary, Glassboro is reported to be seriously ill with tuberculosis.——Dr. M. A. Davis, Vineland, was operated on in Cooper Hospital, Camden, September 9, for appendicitis.

Money for New Children's Seashore Home.—Mr. Max Bamberger, Philadelphia, who died at Kissengen, Germany, August 5, left a bequest of $40,000, "to erect and maintain at Atlantic City, or at some point in the vicinity thereof, a home similar to the Children's Seashore Home, for the accommodation and treatment of invalid Jewish women and children, to be known as the Max and Sarah Bamberger Seashore

Home." It is the desire of the testator that children of Philadelphia be given the preference.

NEW YORK

Personal.—Dr. E. S. McClellan of Saranac Lake, president of the local Board of Health, was struck by a train and severely injured. There is slight hope of his recovery.——Dr. John H. Martin has been elected president and Dr. John C. S. Lappeus, secretary of the newly organized Mutual Protective Association of Doctors of the City of Binghamton.

New Tuberculosis Hospitals.—An institution for the treatment of tuberculosis has been completed and was to be opened in East Bloomfield, Ontario county, September 15. This sanitarium was built at a cost of $15,000.——The Board of Supervisors of Canandaigua on September 3 voted $3,000 for the finishing and equipment of the new tuberculosis hospital, and $1,200 for maintenance of the present institution for October, November and December.

New York City

Personal.—Dr. Mariano Scimeca has recovered his son who was kidnaped June 21.—Dr. Aaron B. Cohen, who severed his connection with the Eastern District Hospital, Brooklyn, September 1, was presented with a silver loving-cup and a set of surgical instruments at a dinner given in his honor August 31.

Clinic for Italian Consumptives.—The Board of Health maintains a clinic for Italian consumptives at 339 East 109th Street. Although this clinic has been in existence for three years, the Italian public has not been made aware of the fact to any extent, and a request has been made that the existence of this institution should be more widely published.

Plan for Better Health Work.—Dr. Lederle has asked the Board of Estimate and Apportionment for a sum which is $1,328,855 in excess of the allowance for this year. This request has brought to light the fact that there are in this city fewer inspectors than there were ten years ago and that there exist three times the number of contagious diseases. The largest increase asked for is $486,056, in the division of hospitals, while the division of child hygiene has asked for an increase of $320,545. This increase is asked so that every school in the city, including kindergartens, parochial schools, industrial schools and the school of correction may all be brought under the supervision of the health board. It is also planned to open winter headquarters corresponding to the recreation piers and summer vacation schools, where mothers will be taught the year round to care for their babies.

Buffalo

Memorial to Sanitarian.—It is proposed to name the new hospital for contagious diseases after the late Dr. Ernest Wende, as a memorial of his services as a sanitarian and health officer.

Addition to Medical Building.—A new addition to the medical building of the University of Buffalo Medical Department is being constructed and will cost, when completed, about $20,000. The first floor of this addition will be occupied by the chemical laboratory and the second floor will be given over to rooms for research. Larger quarters in the old building will also be provided for the department of pathology.

OHIO

New Location for College.—Following the adoption of a resolution of the new Cincinnati Hospital Commission, declaring its intention of appropriating the property between Eden Avenue and Vine Street, it was announced, September 1, that the commission, after acquiring the property, would donate a hilltop site for the new buildings for the Ohio-Miami Medical School.

Personal.—Dr. Martin H. Fischer has been appointed professor of physiology, Dr. H. Knower, of Johns Hopkins Medical School, professor of practical anatomy, and Dr. Julius H. Eichberg, professor of pharmacology in the Medical Department of the University of Cincinnati.——Dr. James E. Torrence, Hamilton, has returned after two months in St. Ignace, Mich., greatly improved in health.

Addition to College.—The Starling-Ohio Medical College is erecting an addition to the college building, to be used for laboratories at a cost of about $10,000. Mr. Roy Graham Hoskins, Ph.D., formerly teaching fellow in physiology at Harvard Medical School, has been secured as professor of physiology and will devote all of his time to teaching. He will be assisted by Dr. Clayton C. McPeek.

PENNSYLVANIA

Personal.—Dr. John W. Luther, chief surgeon of the Palmerton Hospital, Mauch Chunk, was operated on in the University Hospital for appendicitis, September 8.——Dr. and Mrs. Wm. J. Hickson, Pittsburg, are going to Europe.——Dr. Allan W. Urmson, New Castle, has been appointed squadron surgeon with the rank of captain in the Pennsylvania National Guard.——Dr. Francis N. Baker, of Media, sailed September 3 for an extended trip through Europe.

Philadelphia

Another Public Bath House.—A permit has been granted for the erection of a public bath house for the city of Philadelphia at the corner of Montrose and Darien Streets. The building will measure 34x95 feet and will cost $15,000.

Soothing Syrup Maker Held.—Mrs. M. M. Harvey, maker of "Mother's Comfort," for whom a warrant was sworn out several weeks ago, was finally arrested and given a hearing before Magistrate Beaton on September 6. She was held in $500 bail for court.

Vaccination Rule Changed.—Under revision of the compulsory vaccination law, children who have been vaccinated within five years may be admitted to the public schools. Heretofore a certificate of vaccination was required every three years. This change was made after a careful investigation and on an authoritative statement that the period of five years was sufficient.

Personal.—Dr. Charles F. Judson sailed for Europe September 10.——Dr. H. G. Wetherill, Denver, who sailed for Europe September 10 to attend the Gynecologic Congress, in St. Petersburg, was given a dinner at the University Club, September 6, by Dr. Montgomery.——Dr. Sidney Stephenson, of England, who is to make an address before the American Academy of Ophthalmology and Otolaryngology in Cincinnati, has been a guest of Dr. Wendell Reber.

Facts Brought Out by Milk Inquiry.—At the milk inquiry held in the mayor's office on September 3, Dr. Neff showed that 89.2 per cent. of the milk coming to Philadelphia is over 55 degrees on the platform and 98.2 per cent. is over 50 degrees. Mr. Boyd of the Pennsylvania Railroad reported that refrigerator cars and the refrigeration of the milk in transit would cost a mill a quart, or less. Farmers testified that refrigerating milk had saved its cost for them by preventing milk from souring.

Health Report.—There has been an increase of 77 in the number of cases of typhoid fever reported to the health bureau in the seven days ending September 10. Ten deaths were reported as compared with 4 for the preceding week. These cases are not limited to the city proper as 29 cases have been reported from the York Road, Main Line and Lansdowne suburbs. There is a decrease in the number of cases of whooping cough, 16 being reported this week as compared with 27 last. There were also 11 cases of infantile paralysis reported, an increase of 4.

New Playground for City's Poor.—Plans for the transformation of Starr Garden Park into a model recreation center have been made. A building will be erected 44x144 feet. This will contain shower baths for both sexes, gymnasium, club, class, reading and game rooms and also administrative and teachers' quarters. The building will be of colonial architecture, of Flemish bond brick with limestone trimmings and the floors will be of cement and the building fireproof throughout. The structure will be erected on a plot of ground 400 feet long, at a cost of $40,000. Improvements to the grounds, including the establishment of track, a wading pool, tennis courts and every facility for play and recreation will cost $15,000.

Arrests in Pure Food Crusade.—Eleven ice cream manufacturers were arrested and arraigned before Magistrate Beaton, September 9. They were charged with adulterating their products and ten of the eleven pleaded guilty and paid fines of $25 and costs each. Samples of their products examined by Professor LaWall, chemist for the department, and Dr. Randall Rosenberger, of Jefferson Hospital, were found to contain amyl acetate, ethyl acetate, butryic acid and furniture glue. The last was used instead of gelatin and on analysis was found to contain sulphurous acid or sulphur dioxid, and a bacteriologic examination showed each cubic centimeter of the glue contained 350,000 colonies of bacteria.——On September 9, Judge McPherson granted an order in the United States District Court directing the destruction of 822 cans of tomatoes, 9 barrels of catsup and 114 packages of ice cream cones recently seized by federal pure food authorities.

GENERAL NEWS

American Physicians in Mexico to Meet.—The International Medical Association of Mexico, an organization of American physicians residing and practicing in the republic, will be held in Juarez or El Paso the first week in November, under the presidency of Dr. C. E. Husk, Santa Barbara, Chihuahua.

Health Association Election.—At the thirty-eighth annual meeting of the American Public Health Association, held in Milwaukee, September 6 to 9, the following officers were elected: President, Dr. Robert M. Simpson, Winnipeg, Man.; vice-presidents, Drs. Fernando Lopez, Mexico City, Mexico; John Anderson, Washington, D. C., and Gerhard A. Bading, Milwaukee; secretary, Dr. William C. Woodward, Washington, D. C., and treasurer, T. H. Wine, New Haven, Conn.

Missouri Valley Physicians Elect.—At the annual meeting of the Missouri Valley Medical Association held in Council Bluffs, Iowa, September 1 and 2, Dr. Donald Macrae, Council Bluffs, was elected president; Dr. John M. Bell, St. Joseph, Mo., first vice-president; Dr. John M. Banister, Omaha, second vice-president; and Drs. Charles Wood Fassett, St. Joseph, Mo., and Thomas B. Lacey, Council Bluffs, were reelected secretary and treasurer respectively. The next semi-annual meeting will be held in St. Joseph, Mo., March 23.

The Cumberland Valley Meeting.—The eighth annual meeting of the Cumberland Valley Medical Association was held at Blue Mountain House, September 1. The following officers were elected: President, Dr. John B. McCreary, Shippensburg, Pa.; vice-president for Washington county, Md., Dr. C. J. Wingard, Funkstown; for Franklin county, Pa., Dr. John C. Gilland, Greencastle; for Cumberland county, Pa., Dr. Harry A. Spangler, Carlisle; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected); assistant secretaries, Drs. John R. Laughlin, Hagerstown, Md., E. Roberts Plank, Carlisle, Pa., and Henry C. Devilbiss, Chambersburg, Pa., and treasurer, Dr. John J. Koser, Shippensburg, Pa.

Health of the Canal Zone.—The report of the Department of Sanitation of the Isthmian Canal Commission for July shows a death rate of 11.80 per 1,000 per annum, which is a little larger than that of July, 1909, but much smaller than that of the previous four years. There were 12 deaths of white employees, an annual rate per 1,000 of 10.37, while of the colored employees, 39 died, equivalent to an annual mortality of 12.32 per 1,000. Malaria caused 11 deaths; violence, 11; lobar pneumonia, 8; tuberculosis, 5; dysentery, 3; typhoid fever and hemoglobinuric fever, each 1, and other diseases, 11. No case of yellow fever, smallpox, or plague was brought to or originated on the isthmus during the month. As prophylactics 43,159 gallons of crude oil, 9,890 gallons of larvacide, 11.25 pounds of arsenic, 32 pounds of pyrethrum, 541 pounds of sulphate of copper, and 216 pounds of phenol were expended by the department during July.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Sept. 3, 1910.

Irish Vital Statistics

The official figures for 1909 which have just been issued, show that the population of Ireland is still decreasing, the loss by emigration more than wiping out the excess of births over deaths. In 1908 there was a slight gain of population (1853), the first for more than half a century. In 1909 the figures were as follows: Births, 102,759; deaths, 74,973; emigration, 28,676; decrease of population, 890. It is satisfactory that the deaths from tuberculosis continue to decrease; they numbered 10,594, which are 699 less than in 1908, in which year there was a decrease of 386. This result is attributed to the work of the Women's National Health Association, which has been described in previous letters.

Killed by Tattooing

An inquest has been held on a soldier, aged 21, who died from tuberculous meningitis, the result of tattooing on the right arm, which was followed by a tuberculous scar. The medical evidence was to the effect that tuberculosis might have been inoculated in consequence of the tattooist using a needle with which he had previously tattooed a person suffering from the disease, without proper disinfection of the needle, or that the tattooist might have been consumptive and put the needle in his mouth during the operation. Such a result from tattooing must be extremely rare. A few cases have been observed in this country in which local tuberculosis in the form of lupus has followed tattooing.

Outbreak of Cerebrospinal Meningitis

An outbreak of cerebrospinal meningitis has occurred at certain villages in Leicestershire. In all, 35 cases have so far been observed in an area of 50 square miles, the patients being mostly children between the ages of 2 and 11 years; 4 deaths are reported. As a precautionary measure, the schools have been closed. Three years ago a similar outbreak occurred in the neighboring town of Nottingham.

The Value of Fish as a Food

At the annual meeting of the Sanitary Inspectors' Association held at the Fishmongers' Hall, the president, Sir James Crichton-Browne, delivered an address on "Food and Fish Supply" in which he emphasized the value of fish as a food, especially for the poor. Away from our coast towns fish hitherto has been regarded too much as an accessory, and too little as a staple article of diet. Many artisans and people of the middle class might with economic advantage raise their expenditure on fish. They fail to realize the comparative food value of the cheaper, or as they are unfortunately called, the coarser kinds of fish. From a physiologic standpoint fish is the next best thing to meat; 1½ pounds of cod are equal in food value to 1 pound of beef and cost not half the former. If a general call for fish would arise a vast development of the fishing industry would result and good digestible food would be made accessible to the poorest. This might prove a useful auxiliary in the campaign against tuberculosis. We have, as it were, lived on the wild life of the ocean, as our forefathers did on the wild life of the forest. But on the sea, as on the land, we must exchange the chase in a large measure for the ranch and the fold. We should have marine stock farms bordering all our coasts and be able to pride ourselves on our prize turbot and pedigreed cod.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Sept. 2, 1910.

The Campaign Against Alcoholism in the Army

Alcoholism and criminality due thereto, which are in general increasing among the civil population, are, on the contrary, diminishing in most of the European armies. This is notably so in France, where a series of official measures promulgated from 1892 to 1909 tends toward the prophylaxis of alcoholism in the army. All official distribution of brandy or rum has been suppressed in time of peace, and on campaign the distribution of a ration of 0.0625 liter of brandy per man per day is permitted only exceptionally and under rare circumstances, prescribed by the regulation. It is, moreover, absolutely forbidden to sell any brandy or alcoholic distilled liquor in the canteens or on the fields of maneuver. Fermented drinks, however, are still in general use. The moderate use of wine, beer or cider, according to the region, is even recommended and regulated as a hygienic measure and a national custom by the ministerial circulars. Although, thanks to these measures, the French soldier never indulges in alcohol in barracks, unfortunately alcohol still continues to permeate the army. The cause of the evil is outside of the barracks, in those "blind pigs," so numerous near the barracks and camps, where the soldier obtains alcoholic drinks, and contracts syphilis and gonorrhea. For a few years, official instruction in regard to the distribution of alcohol has been given to commissioned and non-commissioned officers and soldiers through lectures, pictures, etc., posted in the messes and dining-rooms. But this is not always sufficient to protect the soldier against the attraction of the saloon. The Red Cross, therefore, has begun to organize "soldiers' firesides," or clubhouses—places where the soldier is, so to speak, at home, where he may deposit his personal belongings, find paper and ink for correspondence, books, games and no alcohol. The military administration has authorized such establishments on condition that they shall be free from religious and political influences.

The Medical Studies of Rabelais

The important place held by the medical sciences in the work of Rabelais is well known. "Gargantua and Pantagruel" abounds in anatomic descriptions and dissertations on pathologic and therapeutic matters. What was the source of the medical knowledge of the great sixteenth-century writer? In a recent thesis for the *doctorat ès lettres* devoted to the work of Rabelais and defended before the Paris college of letters, M. Jean Plattard devoted a whole chapter to the medical

studies of Rabelais and to the place of the medical sciences in his work. M. Flattard showed that the medical bent of Rabelais was due to the fact that at the beginning of the sixteenth century theoretical medicine was entirely founded on treatises of the Greeks and Latins. Whoever knew Greek well could give an authoritative opinion on the interpretation of Galen and Hippocrates. The most technical works were studied by the philologists or "humanists," who had a better knowledge of ancient languages than practicing physicians had. Medicine was founded on "philosophy," in the large sense assigned to the word at that time. Rabelais came to study medicine through the example of his masters and through the natural operation of his humanistic curiosity. He brought to it an enthusiasm of his own and the extraordinary learning thus acquired was put to use in his writings.

New Press for Books for the Blind

M. E. Vaughan, director of the Hospice national des Quinze-Vingts, a hospital for the blind, has invented a little press which permits a 10-year-old child to print in the Braille alphabet without even knowing that alphabet. The operator touches ordinary characters; the machine automatically prints Braille characters. The number of books for the blind and especially for blind children is far too small; therefore this press is capable of rendering valuable service to libraries for the blind.

Employment of Dogs to Seek the Wounded

Lately, during the course of instruction of the sanitary service at Paris, some interesting experiments were made in regard to the finding of the wounded by dogs. The wounded were hidden among high bushes, behind bundles of hay, etc. Dogs brought to the field by the Société national du chien sanitaire found the wounded with surprising certainty and rapidity. The dogs worked even better and more quickly by night than by day. When a well-trained dog has gone over a field, even a difficult one, by night or by day, he leaves no wounded person overlooked, which is a point of the greatest importance.

The Renovation of Old Corks

About ten years ago the council of hygiene of the department of the Seine attempted to forbid all employment of old corks, even when cleaned, for bottles or containers of liquids to be taken internally. There exists, however, a trade in the renovation of corks, and the protests of the merchants affected compelled the council of hygiene to modify the order so as merely to impose on the renovators certain conditions, such as the boiling of the corks for a quarter of an hour in 2 per cent. sodium carbonate, followed by immersion for some hours in 1 per cent. sulphuric acid. These precautions appeared, however, insufficient and on the report of M. Guignard, director of the superior school of pharmacy at Paris, and member of the Académie de Médecine, the following rules for the sale of renovated corks have just been adopted: Corks gathered from the streets, from the Seine, from gutters, etc., must not be sold until they have been submitted to the action of live steam under a pressure of at least two atmospheres, the time of sterilization being not less than twenty minutes. Sterilized corks may be decolorized, provided the chemical used for whitening them shall be completely eliminated. Corks so treated may be put on sale only as "renovated sterilized corks."

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Sept. 2, 1910.

Death of Professor Henoch

A few weeks after the celebration of his ninetieth birthday the senior of pediatrics, Professor Henoch of Dresden, died. Senile weakness which compelled him even on his birthday to limit the reception of delegates as much as possible was increased by the excitement inseparable from the celebration, and in a short time led to fatal results. Henoch was not only one of the founders of modern pediatrics but a distinguished clinician and physician, a remarkable teacher and a striking personality. His academic activity began as assistant to his uncle, the renowned neurologist, Professor Romberg of Berlin. At this time he published his first notable work "Clinical Results from the University Policlinic" (*Klinische Ergebnisse aus der Poliklinik der Universität*). As privat-docent (after 1859), he published the "Clinic of Abdominal Diseases" (*Die Klinik der Unterleibs-Krankheiten*) which in spite of the fact that it embraces three volumes has appeared in three editions. His most noted work is "Lectures on Children's Diseases" which has appeared in a large number of editions and has been translated into many languages. He resigned his direction of the Berlin Children's Clinic in 1893. It distressed him not a little that he could not succeed in getting his extraordinary professorship converted into a regular one, and this dissatisfaction was greatly increased by the fact that what was refused him was assured to his successor, Professor Heubner, on his nomination. There can be little doubt that the Israelitish faith of Henoch was a marked factor in causing the refusal of his request.

Death of Professor von Recklinghausen

On the same day as Henoch, namely, August 26, the distinguished professor of pathology of Strasburg, von Recklinghausen died at the age of 76. He was the earliest assistant of Rudolf Virchow in Berlin, was then appointed as regular professor at Königsberg and six months later went from there to Würzburg. From here he was transferred in 1872 to the newly founded university of Strasburg. The most important of his investigations are the discovery of the wandering connective tissue cells and the establishment of the functions of lymph vessels. Of his monographs his "Handbook of General Pathology, Circulation and Nutrition" is worthy of special mention.

The Cholera

As was to be expected the cholera has also reached us. August 26 a man and wife in our neighboring city, Spandau, sickened of cholera and the woman died the next day. The source of this infection has not yet been determined. Other cases have not yet occurred; the suspicion of cholera in several cases of vomiting and diarrhea was not sustained. August 27 the department of education in conjunction with representatives of the imperial and Prussian provincial authorities adopted further measures for the prevention of an invasion of cholera. In view of the increasing spread of cholera in Russia, the passengers coming by vessels and rafts from Russia have not only been inspected by physicians but their excretions have been bacteriologically examined for the presence of cholera. In this way it was possible to arrest three persons on the Vistula river who seemed perfectly healthy but nevertheless harbored cholera germs in their intestinal contents that might easily cause contamination of a stream by their excretions. These persons were immediately removed and placed under observation. For more careful supervision of commerce along this river as it emerges from Russia into German territory, the establishment of a supervising station at Thorn has been ordered in addition to those already established at Schillno, Schulitz and Einlage. The Russian raftsmen discharged at Thorn are returned by the railroad to Alexandrowo just over the border in Russia. Necessary measures have also been taken against the danger of an invasion of cholera from Italy or Austria. As was to be assumed, the cholera was imported to Italy from the Black Sea. In Russia up to August 19, about 115,000 were attacked, of whom 50,000 died. According to the statement of a Russian journal, thousands of localities are affected. As usual the people oppose the orders of the physicians and the authorities and recognize only brandy as the single remedy for cholera.

Personal

Professor Gaffky, director of the Berlin institute for infectious diseases, has been appointed a regular honorary professor. ——Professor Payr, of Greifswald, has declined the call to Zurich as successor to Krönlein.———Professor Perthes, of Leipsic, has been appointed successor to Professor von Bruns, of Tübingen.——Professor Schwartze, the distinguished otologist of Halle, died August 22, at the age of 72. He has been director of the ear clinic in that place since 1884. The most important of his numerous works are "Pathologic Anatomy of the Ear," in the unfinished "Handbook of Pathologic Anatomy" by Klebs, the "Text-book of Surgical Diseases of the Ear," the fiftieth number of "Deutsche Chirurgie" and the "Handbook of Ear Diseases." For a long time he was edito. of the *Archiv für Ohrenheilkunde*.

Disbursements for Wage-Earners' Insurance

In 1909 the German Empire, according to the recently published report, expended $12,500,000 (51,500,000 marks) for disability and old age insurance, $250,000 (1,000,000 marks) more than in the previous year.

Quackery in Prussia

According to a report published by the department of education, the number of quacks inscribed in the lists of the official physicians in the year 1908 was 7,549. The number has constantly risen in recent years. The proportion of quacks to the number of physicians and dentists in the same year was 36.29 per cent., while in the previous year it was 32.72. In spite of the care of the officials to enlighten the public and in spite of the judicial punishment of quacks for fraud and physical injury, even with fatal results, the activity of the quacks is scarcely diminished. For this reason the government is contemplating again the introduction into the Reichstag of a bill for a German law against quackery. Meanwhile it is being discussed by the upper house.

Nursing Premiums

Especially good results are reported from a district of Wurtemberg from the introduction of nursing premiums. In that district the infant mortality in the country is very remarkable; in one community in late years on the average about 30 per cent. of the children died in the first year of life. After a philanthropic society offered a daily premium of from 25 to 50 pfennigs (6 to 12 cents) for all needy mothers who nurse their children after the first six weeks, more than two-thirds of the children were nursed during the first 3 months, and only 3 died, while of the rest who were artificially fed during the same time, 26 died.

Instruction in Biology in the Higher Schools

As a result of repeated efforts by a committee appointed at the German Naturforscher annual meeting, biologic instruction was introduced a few years ago into the higher schools, gymnasia, etc. Especially exercises in natural science have been more and more introduced and have given good results. The Prussian minister of education has for that reason made an announcement in which he holds it very desirable to continue these exercises because great value must be attributed to practical methods of instruction for stimulating observation and independent thought as well as for a recognition of the peculiar importance and limited applicability of scientific methods of work. The instruction consists of laboratory exercises in chemistry, instruction in natural history, observation in the school garden, terrariums and aquariums, experiments in plant physiology and exercises in simple macroscopic and microscopic preparations. Schools which are unable to provide for such exercises from their own means are assured aid from the department.

VIENNA LETTER

(*From Our Regular Correspondent*)

VIENNA, August 29, 1910.

Sporadic Cholera in Vienna

As pointed out in the last Vienna letter, the spread of cholera toward central Europe has been energetically combated. Only two cases have appeared in this city; one patient died, the other survived. Isolation and disinfection, promptly applied, proved efficient, and these two cases remain as yet the only ones reported. Wide publicity has been given to the fact that the disease has found its way into the heart of the empire. But the Board of Public Health thought it wisest to let the people know the actual conditions, so as to justify the very strict measures and restrictions of commerce which modern hygiene and prophylaxis require. In Hungary, too, sporadic cases have been reported, but here also, the authorities have succeeded so far in stamping out any extension of the infection.

University Students in Austria

Statistical data are now available about the students inscribed at the Austrian universities during the summer term, 1910. Altogether there are eight universities in this country, with a little less than 25,000 students, or an increase of 8 per cent. over the figures of 1909. Ninety-two per cent. were men, 8 per cent. women. The medical students numbered 4,098, an increase of 14 per cent. when compared with last year's figures; while nearly 11,000, or 47 per cent. of all, studied jurisprudence, the increase in the latter group being only 8 per cent. The medical course was taken up by only 16 per cent. of the total. This is explained by the necessity of producing a diploma of jurisprudence for appointment in the civil service. Two hundred and twenty-one women, constituting 5 per cent. of the total number of medical students, took up medicine. As the number of female students was altogether 1,950, this means that over 11 per cent. of all women studying at the universities want to become doctors of medicine. There is a decrease, both relative and absolute, of the number of female medical students, and an increase of male medical students. The reasons are as yet obscure, for the expectations and openings for female practitioners are rather more numerous and better than before. More puzzling still is the increase in numbers of men taking up medicine. In spite of the warnings to the graduates of colleges and gymnasiums, the admonitions of medical associations, the explanations published often in the dailies as to the hardships and difficulties of a general practitioner, the output of doctors is still increasing. In Vienna alone, last year, there were 1,813 students in hospitals, laboratories and clinics, while the remaining seven universities each had between 300 and 500 medical students to provide for. The teaching is uniform all over the empire as far as possible. Therefore, there is no distinction whatever made between diplomas gained at any of our seats of learning. On the contrary, students are encouraged to frequent as many universities as possible, preferably those of their own language. The age at entrance to university has been fixed at 18 years, but there were seventy-two persons younger than that, while there is no upper age limit. The final medical examinations, however, must be passed within seven years after the first examination to be regarded as valid. The oldest medical students were a man of 64, a retired judge, and a man of 60, who thus prepares himself for his arduous career as a missionary.

The attempt has been made to obtain reliable figures showing how many students were non-consumers of alcohol, and also as regards the general health. In Vienna it was found that not only pulmonary troubles, but also genital diseases, especially gonorrhea, were not infrequent. Exact figures will be forthcoming shortly.

Discontinuation of Weak Diphtheria Antitoxin

The results obtained in treatment of diphtheria with antitoxin are still not recognized uniformly, but it is the opinion of the majority of doctors that only strong doses are really useful. Therefore, the ministry of the interior has ordered the serotherapeutic institute in Vienna (the only authorized serum factory here) to discontinue the production of serum containing less than 1,000 units. This has been received with great satisfaction by practitioners.

The Health of Austria

Every three months a report is issued by the board of health on the health conditions in the empire. Thus for the spring of 1910, it appears that we have had exceptionally favorable conditions. With the exception of diphtheria (with 11 per cent. mortality) and typhoid (7 per cent. mortality) all infectious diseases have diminished in severity and frequency. Especially measles, cerebrospinal meningitis, scarlet fever and poliomyelitis have gone down; smallpox was reported only in ten cases altogether. Anthrax (eleven cases with three deaths) appeared sporadically. In every instance the infection was traced to occupation with hides and hair. Altogether there is constant decline in morbidity since the spring of 1909, in spite of the very changeable weather prevailing in Central Europe.

Miscellany

Parasitic Culture.—That the general culture ideal that certain courses of physical or mental discipline will give a fund of physical or mental energy potentially available for all the demands of subsequent life, may be a mistaken one, is a proposition advanced by George E. Dawson, Ph.D. (*Pop. Sc. Monthly*, September, 1910). The term "general culture" as applied to the organic life is probably a misnomer. The culture we get from gymnastic training and from the athletic field is really special in character and is applicable mainly or solely to the types of physical activity that constitute the training, and unless organs continue to perform the functions for which they were trained they become useless and a detriment to life. They become parasitic. The same proposition holds true with regard to the brain and the intellect, and applies to the unused organs of the mind that have been trained through stunts in mathematics and the classical languages, though the evidence may seem less tangible and

conclusive. Functionless physical structures derived through artificial exercises of any kind thus fall under the general biologic law of atrophy with all its attendant consequences of waste and disease. The only really economical form of physical culture, biologically speaking, is the culture derived through performing activities associated with the natural, fundamental and long-established functions of life. These are, in general, the spontaneous play-activities of childhood and the productive work-activities of manhood, each performed under normal conditions of stimulus and environment. Dawson quotes Payot, who says that the qualities of vital resistance are in no way dependent on muscular strength. A man may be an athlete in a circus and yet have very poor health, while a man who lives in his study may have an iron constitution with mediocre muscular power. Applying this to mental culture, Dawson lays down the proposition that the intellectual culture derived through standardized branches of education, as mathematics and Latin, for example, instead of having a general mental economy for those who study them, in reality becomes parasitic in the nervous and mental life, and thus a cause of wasted energy and possibly of disease. This has been proved by the test of exact experiments by psychologists, and neurology supplies additional indirect evidence. The study of the development of the cortical neurones and association fibers makes it probable that every mental process modifies these nervous elements. Thus the study of mathematics means, on the neurologic side, the building up of neurons that constitute a mathematical nervous mechanism, and the study of Latin or Greek means the building up of nervous structures specifically adapted for those languages, and those nervous organs when unused become parasitic on the nervous vitality, just as the unused muscles of the athlete become parasitic on the general organic vitality. Dawson therefore summarizes his conclusions as follows: 1. It is a law of the biologic world that unused organs become parasitic and tend toward disease. 2. Physical culture which leads to the hypertrophy of special muscles entails a drain on general vitality. 3. Experimental psychology shows that culture of particular intellectual organs and functions cannot be transferred to other organs and functions, except where there are elements in common. The histology and pathology of the nervous system confirm these conclusions. 4. Intellectual culture, not being transferable, must become parasitic and a cause of mental disorganization when it fails of application in the form or channel in which it is acquired. Illustrations are found in the overrefinements of culture in academic communities, in the nervous instability frequently encountered among educated men and women, and in the religious and social vagaries and perversions that crop out in the older and more highly cultivated centers of population. 5. This artificial culture is likely to develop a cultured proletariat, ill-balanced and inefficient as individuals, and a source of danger in our civilization.

Pharmacologic Fetishisms; Another Challenge to the Iconoclast.—The *Journal-Record of Medicine* (Atlanta) protests in its August number as follows: Barton (THE JOURNAL A. M. A., July 23, 1910) makes an attack on a number of well-known drugs, such as calomel, aconite, ammonium chlorid, sweet spirits of niter, veratrum viride, etc. The matter seems to have been considered exclusively from the standpoint of animal experimentation or at least one would judge so from the nihilistic views expressed. So at variance are Barton's ideas with those of thousands of practitioners who are daily using these remedies, that a protest hardly seems necessary. Whether calomel acts as a cholagogue or as an intestinal antiseptic matters not at all to the patient with intestinal auto-intoxication or the so-called biliousness. Incontestable facts have proved calomel to be the best remedy to make the patient well under such circumstances, so why "split hairs" and bewilder the physician who already has few enough of drugs with physiologic effects that may be relied on? Have we not all seen the diuretic effect of sweet spirits of niter? Are there sufficient millions of animals to prove it has no such action in human beings who are being treated with it? Spartein is maligned as being a worthless cardiac stimulant, but not a word said of its value as a renal stimulant; given hypodermically in 1 to 2 grain doses, the writer knows of no more dependable drug when suppression of the urine is feared—especially if it be given early, for instance, twelve hours before an operation where suppression is a danger. It is not to fight the individual battles of these separate drugs that this editorial is written, but rather is it intended to condemn the indiscriminate nihilism underlying the above article. For the sake of hyper-scientific accuracy, Barton marshals before us an array of petty points of weakness of our most valuable drugs, and thus he weakens our faith in our best and most reliable friends and makes us all the easier prey to the alleged virtues of many worthless proprietary preparations so scientifically (?) heralded before us. If we are not to use these drugs which are condemned, in part if not totally, then what should we use in their stead? Can Barton provide for us more reliable drugs than those he declares so worthless?

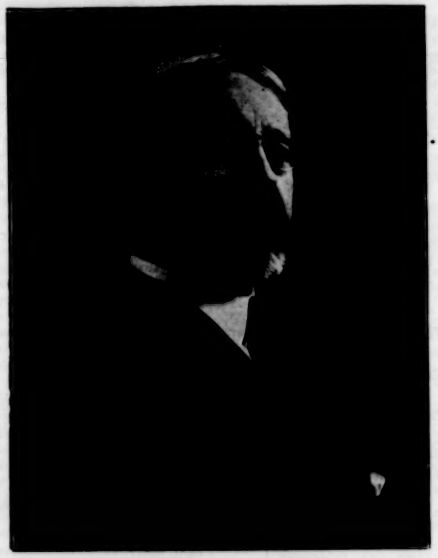
The Etiology and Biology of Tumors.—The present communication is the last of a series of ten articles dealing with the etiology and biology of tumors of different types. In it E. Saul (*Centralbl. f. Bakteriol., Parasitenk. u. Infektionskr.*, Orig., 1909, lii, 235) gives a summary of the principal results obtained from a long series of experiments and observations. He finds that in fibromas, cystomas, carcinomas and sarcomas, a special class of parasitic organisms exist. These same organisms may occur extracellularly, either as ameboid or encysted forms, or intracellularly, when they appear as granules or vacuoles. The ameboid and encysted forms are destroyed by fixation and imbedding. Protozoa, says Saul, which give rise to chronic infections, may, under the influence of the living organism, acquire such developmental forms that it is impossible to demonstrate them within the tissues. There are parasitic protozoa, which are infectious in the ameboid stage only, which infiltrate embryonic cells only and which appear as granules or vacuoles in the cells thus infiltrated. By inoculating the ordinary experimental animals with a certain type of cancer parasite, Saul asserts that it is possible to bring about in these animals acute fatal intoxication, granulation tumors, interstitial lymphatic and connective-tissue proliferation in the kidney and the lung (which present the typical picture of chronic interstitial nephritis and fibrous peribronchitis) and cachexia which takes the form of extreme emaciation, ending with death. As in the case of tuberculosis, carcinoma shows a tendency to follow certain chosen paths. Regarding metastases, it is believed that carcinoma fluid is avirulent in the blood-stream, while sarcoma fluid is avirulent in the lymph-stream. From subcutaneous implantation of parts of *Cysticercus fasciolaris* either acute fatal intoxication resulted in the experimental animals or neoplasms developed, which were on the boundary zone of fibroma, sarcoma and granulation tumors.

The Rôle of Streptococci in Scarlet-Fever Infections.—F. Schleissner finds (*Folia Serologica*, 1909, iii, 221) that the blood of scarlet-fever patients always contains antibodies for streptococci. By the method of complement-fixation he attempted to determine whatever etiologic significance streptococci possess in scarlet-fever infections. Various strains of streptococci from the blood of scarlet-fever patients were cultivated and emulsions of these strains were used, according to the method of Bordet-Gengou, with a series of scarlet-fever cases for the fixation of the complement. Two sets of controls were also employed; on the one hand, serums from various classes of diseases which were not in any way connected with streptococcus infection, and on the other hand, streptococcus strains from erysipelas, sepsis puerperalis and panophthalmia. In the majority of cases of scarlet fever (2 to 5 weeks), the serum gave a positive reaction with scarlet fever streptococcus cultures. With streptococci from erysipelas the reaction was always negative, while with other streptococci there was usually a retarding of hemolysis. From his experiments Schleissner concludes that the constant occurrence of antibodies in the blood of scarlet-fever patients indicates that streptococci stand in some biological relationship to the disease processes in scarlet fever. This relationship, however, is, at present, so obscure that it furnishes no certain proof that streptococci have a definite etiologic significance in the disease.

Deaths

James Nevins Hyde, M.D. University of Pennsylvania, Philadelphia, 1869; a member of the American Medical Association; twice president of the Chicago Dermatological Association; second president of the American Dermatological Association; and an honorary, active or corresponding member of the leading dermatologic associations of Europe; assistant surgeon in the Navy for two years during the Civil War and for three years thereafter; for thirty-one years professor of skin, venereal and genito-urinary diseases in Rush Medical College and secretary of the council administration and faculty of the institution; professorial lecturer on dermatology at the University of Chicago since 1902; a notable contributor to the literature of dermatology; and the author of a standard text-book which is already in its eighth edition; dermatologist to the Presbyterian, Augustana and Michael Reese hospitals, and the Chicago Orphan Asylum; a member of the Mayflower Society, the Society of Colonial Wars. and the Sons of the American Revolution; one of the most prominent specialists on skin and venereal diseases of America; died suddenly September 6, at his summer home, Prout's Neck, Maine, aged 70.

Dr. Hyde was one of the best known of American medical men. Not only was he highly regarded by his coworkers in his chosen field of professional work on account of that work, but because of his interest in medical affairs and the medical profession generally. All who knew him loved him for his liberality and for his kindness toward all who approached him, young men especially.



JAMES NEVINS HYDE, 1840-1910

William Bailey Sanford, M.D. University of Nashville, Tenn., 1880; of Memphis; a member of the Tennessee State Medical Association; for ten years health officer of Alcorn county, Miss.; surgeon to the Memphis and Charleston Railroad; vice-president of the Mississippi Medical Association, and surgeon and chief of the North Mississippi Medical and Surgical Infirmary; professor of medical economics and life insurance in the College of Physicians and Surgeons, Memphis; died in Colorado Springs, September 2, from erysipelas, aged 59.

David D. Bramble, M.D. Medical College of Ohio, Cincinnati, 1862; a member of the Ohio State Medical Association and Cincinnati Academy of Medicine; for many years professor of surgery and dean of the Cincinnati College of Medicine and Surgery; health officer of the city in 1883 and 1884; died at his home in Avondale, September 2, from nephritis, aged 70.

Frank Fleury, (years of practice, Ill., 1887); of Springfield; from 1881 to 1885 secretary of the State Board of Pharmacy; secretary of the Illinois State Pharmaceutical Association in 1880; died at the home of his daughter in Springfield, August 29, from uremia, aged 68.

Emily Blackwell, M.D. Western Reserve University, Cleveland, 1854; of Montclair, N. J.; who with her sister, the late Dr. Elizabeth Blackwell, founded the New York Infirmary for Women and Children, the first hospital for women in America; died at her summer home in York Cliffs, Maine, September 8, aged 84.

Otto Clarence Baird, M.D. University of Iowa, Iowa City, 1910; of Lockridge, Iowa; while attempting to board a moving train at that place, August 19, was thrown under the wheels and had both legs cut off just above the ankle, and died in the Burlington (Iowa) Hospital, August 24, aged 24.

Parley Howard Eaton, M.D. Howard University, Washington, D. C., 1881; chief of the Division of Issue, Treasury Department, Washington, D. C.; died in Georgetown University Hospital, Washington, February 12, thirty-six hours after an operation for ulcer of the stomach, aged 67.

Joseph Theodore Green, M.D. Kentucky School of Medicine, Louisville, 1893; a member of the American Medical Association; local pension examining surgeon and surgeon of the Illinois Central Railway; died in St. Authony's Hospital, Louisville, August 30, from pneumonia, aged 43.

Alfred Hamilton Iddings, M.D. Bellevue Medical College, 1866; for several terms health officer of Dayton, Ohio, and for two terms a member of the board of education; local United States pension examiner; died at his home August 20, from chronic interstitial nephritis, aged 70.

Harry Vroom Day, M.D. New York University, New York City, 1877; a member of the American Medical Association; president of the Borough council of Butler, N. J., and vice-president of the First National Bank; died at his home in Butler, August 30, from cancer, aged 58.

George F. Perry, M.D. Washington University, St. Louis, 1875; of Ochiltree; a member of the State Medical Association of Texas; in 1890, representative in the state legislature; died in St. Francis Hospital, Colorado Springs, August 30, from uremia, aged 63.

Ernest Douglas Powell, M. D. Vanderbilt University, Nashville, 1900; one of the inspectors of public schools of Memphis, Tenn.; died in his office from the effects of a gunshot wound of the head believed to have been self-inflicted while despondent, aged 36.

Edmund Livingstone Moodie, M.D. Baltimore Medical College, 1902; of Chatham, Ohio; a member of the American Medical Association; died in Harper Hospital, Detroit, July 8, from sepsis, following an operation for hemorrhoids, aged 36.

William J. W. Cornwell, M. D. Medical College of the State of South Carolina, Charleston, 1866; a member of the South Carolina Medical Association, and a Confederate veteran; died at his home in Cornwell, July 16, from gastritis, aged 69.

T. Frank Keys, M.D. University of Pennsylvania, Philadelphia, 1883; died at his home in Chicago, September 6, from inanition following operations necessitated by pyloric stenosis of long standing, aged 50.

Chancellor Yager, M.D. Kentucky School of Medicine, 1877; a member of the Kentucky State Medical Association; died at his home in Shelbyville, September 4, from typhoid fever, aged 53.

George Barstow Richmond, M.D. New York University, New York City, 1879; formerly of Salinas, Cal.; died at his home in Westboro, Mass., July 31, from pulmonary hemorrhage, aged 52.

Harold Lee Barnum, M.D. Hahnemann Medical College of Philadelphia, 1902; city physician of Sedalia, Mo., for two years; died at his home, August 30, from cerebral hemorrhage, aged 35.

Umberto Buffo, M.D. University of Turin, Italy, 1904; a member of the American Medical Association; of McAlester, Okla.; died in New York City, August 31, from nephritis, aged 31.

Tobie Lucien Lougarre, M.D. Tulane University, New Orleans, 1876; a member of the Louisiana State Medical Society; died at his home in Moreauville, August 29, aged 72.

Charles T. Buckholtz, M.D. Homeopathic Medical College of Missouri, St. Louis, 1874; died at his home near Murphysboro, Ill., August 30, from angina pectoris, aged 69.

Harry Hunter Fox, M.D. Southern Homeopathic Medical College, Baltimore, 1904; died at his home in Baltimore, August 29, from nervous breakdown, aged 30.

John Allan Batton, M.D. Jefferson Medical College, 1882; a member of the American Medical Association; died at his home in Uniontown, Pa., March 14, aged 53.

Samuel C. Johnson, M.D. Jefferson Medical College, 1879; of Sharon, Pa., died from angina pectoris while sitting at the bedside of a patient, August 28, aged 57.

John Wilson, M.R.C.S. England, 1858; of Detroit; died at the home of his son in St. Joseph, Mich., August 19, from myocarditis, aged 71.

Harrison McFadden, M.D. Medical College of Ohio, Cincinnati, 1862; died at his home in Magnetic Springs, Ohio, August 31, aged 70.

Jane Howarth Bowker, M.D. Tufts Medical College, Boston, 1896; died at her home in Cambridge, Mass., August 5, from paralysis, aged 69.

Marshall Job Brown, M.D. University of Maryland, Baltimore, 1907; died in Baltimore, September 4, from acute gastritis, aged 27.

Marion D. Ditzler, M.D. Cincinnati College of Medicine and Surgery, 1876; died at his home in Lewistown, Ohio, August 31, aged 56.

Jennie E. Barrows, M.D. Eclectic Medical College of the city of New York, 1872; died at her home in Berkeley, Cal., August 27.

Henry B. Arnold, M.D. Jefferson Medical College; died at his home in California, Pa., January 5, from senile debility, aged 83.

Melvin Rhorer, M.D. University of Louisville, 1871; died at his home in Lexington, September 5, from tuberculosis, aged 68.

James Monroe Carver, (license, Ind., 1897); died at his home in Winchester, March 16, from chronic nephritis, aged 55.

Marriages

H. A. BORN, M.D., to Miss Elizabeth T. Blankner, at Baltimore, August 31.

MILO GOSS SLOO, M.D., Topeka, Kan., to Miss Louise Fuerst of Chicago, August 27.

JOHN R. BUSER, M.D., Delavan, Minn., to Miss Alma Rosine Arnold of St. Louis, Mo., September 1.

HENRY NEILL WHITELAW, M.D., Oakesdale, Wash., to Miss Mary Macklin of Pasadena, Cal., September 7.

SAMUEL STUART HACKWELL, M.D., Blaney, Mich., to Miss Jean Beulah MacTaggart of Bad Axe, Mich., August 31.

THEODORE GAWN FINLEY, M.D., Los Angeles, Cal., to Miss Bertha Madelaine Vilas of Berkeley, Cal., September 1.

HARRY PIDDOCK KNOWLES, M.D., South Haven, Kan., to Miss Eleanor Malinda Porter of Sterling, Kan., September 1.

JOHN WALKER CARTER JONES, M.D., Newport News, Va., to Miss Charlotte Wilson Stephenson of Warm Springs, Va., August 31.

CHARLES KNICKERBOCKER WINNE, JR., M.D., Albany, N. Y. to Miss Sarah Foster Merrall of Baltimore, at New York City, September 1.

Japanese Medical Archives.—The first number of the ninth volume of the archives published in the German language by the medical department of the Tokyo University maintains the high standard of the preceding volumes. It is a work of 174 pages, and contains also the total list of contents from the inception of the *Mittcilungen*. The leading article is on the pathologic anatomy of the nerves and muscles in beriberi, with fine illustrations and tabulation of the findings compared with those of fourteen other workers in this line at home and abroad.

Pharmacology

KEPHALOSE

A French Headache Remedy That Has Been Declared Misbranded

The following communication from Dr. J. R. Hurley, a district health officer at Iloilo, P. I., throws an interesting light on the "patent medicine" business in the Philippine Islands:

"I believe that you are keeping a record of the prosecutions and judgments obtained under the Food and Drugs act. I don't know whether you are interested in such matters in the Philippines or not, but I am reporting the following case for your information. The case was brought against the firm known as 'The Estrella del Norte' doing a general retail business, and which imports and distributes a French proprietary remedy known as 'Kephalose.' All sorts of impossible claims are advertised for this nostrum, including those for which acetanilid is recognized as being useful when intelligently prescribed by a physician. In fact it was the intention of the manufacturers and exploiters to introduce this nostrum in this country as a common household remedy.

"The nostrum was advertised as being harmless, and rules for dosage were contained in a circular which goes with each box, also setting forth the manifold ailments in which it is a 'sure cure.'

"Apparently to comply with the customs regulations, on a small yellow label on the box it states that each dose (one tablet) contains 2 grs. of acetanilid. Inasmuch as it was obviously to be sold broadcast to the native Filipinos, a small proportion of whom can read English at all, much less know what acetanilid is, and on account of the well-known toxic effects of acetanilid, unless prescribed intelligently and with discretion where it is indicated by a physician, it was decided to prosecute the distributing firm under two counts.

"To prove that the nostrum was misbranded, and that the company was selling dangerous drugs without a pharmacist's license, samples were bought in the open market, and, properly labeled, sent to the Bureau of Science, Manila, for analysis. The analysis showed Kephalose to be composed of the following:

Moisture	5.0
Antipyrin and caffein	75.9
Acetanilid	trace
Potassium bromid	3.8
Sodium carbonate	3.3
Sugar	12.0
	100.0

Colored with an anilin dye.

"This fact was brought forward at the trial, together with such other evidence necessary to show that the nostrum contained a dangerous drug, and could not be considered as a household remedy, which proved that the nostrum was misbranded, and that the company was therein selling a dangerous drug, without a physician's prescription, and without a licensed druggist to put it up.

"The court found the Estrella del Norte guilty, and fined the company fifty pesos, an amount equal to twenty-five dollars, gold."

COMMENT.—Dr. Hurley's letter goes to show that the American government safeguards the health of the Filipinos more jealously than it does that of the native American. If the manufacturers of the thousand-and-one acetanilid- or antipyrin-containing nostrums sold to the laity in this country should be fined for selling a dangerous drug as a household remedy what a howl of protest would go up. Doubtless Dr. U. S. Boone, of St. Louis, the Antikamnia people or the Proprietary Association of America would at once set to work collecting "statistics" to prove the innocousness of antipyrin and acetanilid.

Association News

DATE OF NEXT SESSION

Suggestions Desired by Board of Trustees Concerning Los Angeles Session, 1911

The date of the next session of the American Medical Association, to be held in Los Angeles, California, is a matter of considerable importance. The great distance which a majority of those who attend will be obliged to travel, and the length of time necessarily consumed in the journey, make it more essential than usual that the date be the one which shall accommodate the greatest number of those who desire to attend. That several of the members are already taking an interest in the matter is evidenced by a number of letters on the subject which the Chairman of the Board of Trustees has received recently and he takes this opportunity not only to acknowledge their receipt but also to express his thanks to the writers thereof for their views thus presented.

It seems to be generally recognized that the first week in June is not a desirable time for the session for the reason that it conflicts with the examinations and the commencement exercises of a large majority of the medical colleges throughout the country.

The question, then, is whether the session should be held early enough in May or April to permit those living in the east to attend and to return in time to close up their college work for the year, or late in June after the college work is over.

If held during the college term it means that many who desire to attend will be unable to do so, perhaps, and that others will be obliged to make a flying trip, while in favor of a later date it may be said that we shall probably secure very favorable railroad rates, with long time extension and choice of diverse route returning with liberal stop-over privileges. This will enable those who so desire to spend their summer vacations in the west or northwest where there are many beautiful and interesting places to visit.

It has been suggested by some that the weather in Los Angeles late in June might be uncomfortably hot. In order to have some reliable information on the subject, the Chairman of the Board of Trustees has secured, from the director of the government weather bureau at Los Angeles, extensive data concerning the weather—temperature, humidity, winds, etc.—at that point for several years past. The following extracts from a letter received from A. B. Wollaber, local forecaster at Los Angeles, indicate very well what may be expected in the line of weather:

"I take pleasure in stating that a careful examination of the records of this office covering a period of 33 years shows that the temperature conditions here are very equable and, with the exception of an occasional warm spell that might occur at any time throughout the year, not at all unpleasant. The highest minimum temperature on record for May is 70 degrees, the average minimum being 52 degrees. For June the highest minimum on record is 70 degrees, the average minimum is 56 degrees and for July the highest minimum is 76 degrees, average minimum 59 degrees. The minimum temperature may be said to fairly represent the night temperature. The average maximum or day temperature during May is 73 degrees, June 78 degrees and July 82 degrees.

"There is one important factor in our temperature conditions here in Los Angeles not easily shown by figures. I refer to the comparatively short duration of the extremes of both heat and cold. It is very rare for the temperature to stay at a maximum for over two hours at a time and the maximum, as a rule, occurs shortly before or shortly after noon. The temperature rises gradually with the advance of the day, until it reaches the maximum when, under the influence of the daily ocean breeze it drops gradually downward until it reaches the minimum during the early morning hours.

"Another and most important factor to be considered is the low humidity which always prevails during the heat of the day. During heated terms it is not unusual for the humidity to drop as low as 6 per cent. while the average humidity during the heat of an ordinary summer day ranges between 35 and 50 per cent."

Thermograph and hydrograph trace sheets showing the actual temperature and humidity during this period were received, fully confirming the statements above mentioned. It will thus be seen that the fear of meeting with excessively hot weather, even though the session should be held as late as the last week in June or the first in July, are entirely without foundation.

In setting the date of the meeting the Board of Trustees desires solely to accommodate the greatest number and the Chairman of the Board will be very grateful if all who are interested in the date of the session will indicate to him by postal or letter the date on which it will be most convenient for them to attend.

M. L. HARRIS, Chairman, Board of Trustees.
100 State Street, Chicago.

Correspondence

Registration of Foreign Physicians

To the Editor:—To elucidate further the matter of "Registration of Foreign Physicians," I beg leave to comment on the remarks of the writers of the letters in THE JOURNAL, September 3 and 10. Dr. Honeij is right; I am a Canadian, but again he is wrong. I have no friends who wish to register in the United States in the near future or at any other time. If I did have, I should not need to apologize for them, as I am sure that they would acquit themselves honorably.

He is also wrong when he says that I do injustice to American physicians. I reiterate my letter of August 27, and as I spoke truthfully, wherein lieth the injustice? I am sure that the American physician (and not every practitioner is a physician) would rightly resent being classed among the ill-trained aspirants for license to practice in Canada or elsewhere who admit their inability to qualify. That the best colleges of the United States are A1 I will not deny, but that the graduates from the best colleges find the expressed difficulty in obtaining license to practice in Canada, I question. I could easily qualify the remarks as to the thoroughness of the various state board examinations, but I will pass them over, only saying that they are relatively hard, *i. e.* comparing one state with another. I do not know the requirements of all foreign countries. I was talking about Canada.

A word about the requirements of Great Britain. The conjoint and other boards require a statement of the time spent in each subject, with an examination in that subject in which the candidate passed successfully, certified to by the professor of the subject, before he is permitted to take the examination. The medical council in London accepts the proper credentials from the best American schools, but not from "diploma mills." The examination is both oral and written.

The only reason I can put forth for Dr. Honeij being referred to the Nova Scotia school is that, poor as is its standing, it came nearer the standard required by the licensing board than did the school from which he graduated. I knew several graduates of American universities when I was in London and these had no difficulty in qualifying for and passing the examination. The fact that Dr. Honeij was a citizen of South Africa is no reason why less should be required of him in order to practice medicine there. I would rather suggest raising the standard of examination, requirements, etc., as a means toward keeping foreign physicians out, than by making appeals for legislation whereby the public must suffer. Possibly in the future the foreign countries in question will lower their standards and then the poorly informed "Doc." will be able to shake hands with his friend from abroad and feel himself an equal.

D. NATHAN, Norristown, Pa.

Fleming Test in Serodiagnosis of Syphilis

To the Editor:—A communication from Dr. Bernard Oettinger calls my attention to an omission in my article on serum diagnosis of syphilis (THE JOURNAL, August 27, 1910) I quoted Bassett-Smith as having found the Fleming modification unsatisfactory. In a later communication Bassett-Smith revises his previous opinion of the Fleming test as the result of further experience (*Brit. Med. Jour.*, 1910, March 12, p. 632). From a series of 500 cases his results were indefinite in only 10 per cent. "A positive result was always reliable, in fact it was obtained in some cases earlier in the disease than with the other methods tried."

HOWARD FOX. New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DATA WANTED ON POSTOPERATIVE TETANY

Dr Francis D. Patterson, 2103 Locust St., Philadelphia, is anxious to secure the details of any hitherto unreported cases of postoperative tetany.

PRAIRIE ITCH

To the Editor:—What is the medical term for what is known in the northwest as "prairie itch"? J. F. KENNEDY, New York.

ANSWER.—"Prairie itch" is a term applied in the west and northwest to a number of forms of pruritus, the most frequent of which is a pruritus described under the name of pruritus hiemalis. Similar conditions exist in various parts of the country among farmers, lumbermen, miners and others and are variously called "Texas mange," "Ohio scratches," "swamp itch," "lumberman's itch," etc. Many cases of so-called "prairie itch" are undoubtedly scabies.

PALATABLE COUGH MIXTURES

To the Editor:—I do not like the idea of having to use "patent medicines," consequently I would like to know of a cough mixture that is serviceable and palatable, and also a good anodyne liniment which is not obnoxious to the patient. E. J. G. S.

ANSWER:—The Physicians' Manual of the Pharmacopeia and the National Formulary refers to thirteen official cough mixtures, a sufficient variety from which to select one suitable to almost any case, so that there seems no need of resorting to nostrums. They are:

Elixir picis compositum	Syrupus chondri compositus
Elixir terpini hydratis	Syrupus pectoralis
Mistura glycyrrhizæ composita	Syrupus pini strobi compositus
Mistura ammonii chloridi	Syrupus scillæ compositus
Mistura olei picis	Trochisci ammonii chloridi
Mistura pectoralis	Trochisci glycyrrhizæ et opii
Species pectoralis	

The following anodyne liniments may be used singly or in mixtures:

Linimentum belladonnæ, N. F.
Linimentum camphoræ, N. F.
Linimentum opii compositum, N. F.

TECHNIC OF ELABORATING AUTOGENOUS VACCINES

To the Editor:—Please give me the detailed technic of elaborating autogenous vaccines. After pure culture is obtained, how are the germs killed, counted and put up in the sealed tubes?
J. S. WEBER, Davenport, Iowa.

ANSWER:—The bacteria are killed by exposure to a temperature of 60 C. for an hour. They may be counted by Wright's method which is as follows: Equal quantities of the culture are mixed with normal blood; after staining a preparation on a slide, the ratio of bacteria to the red blood cells is determined by counting. Since there are about 5,000,000 red blood cells to the cubic millimeter in normal blood, the number of bacteria is easily calculated from the ratio which has been found. The culture may now be diluted so as to contain the requisite number of bacteria per cubic centimeter and placed in a sterile container which may be hermetically sealed in the frame, if desirable.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Sept. 10, 1910.

Stallman, Geo. E., D.S., Aug. 27, returned to Ft. Sam Houston, Texas, from Leon Springs, Texas.

Harris, H. S. T., lieut. col., Aug. 23, ordered to proceed from San Francisco, to Camp of Instruction, Atascadero, Cal., for duty.

Bevans, James L., capt., Aug. 30, ordered to proceed from San Francisco with one-half of Co. B Hospital Corps, to the Camp of Instructions at Atascadero, Cal., for duty.

Clarke, Jos. T., maj. and Fisk, Owen C., lieut., Aug. 25, ordered to proceed with the troops from Ft. Crook, Neb., to the fair grounds, Des Moines, Iowa, for duty during the military tournament at that city, Sept. 26 to Oct. 1, 1910.

Read, I. W., maj., September 3, left Fort Hancock, New Jersey, on ten days leave of absence.

Bourke, James, capt., August 25, order to proceed with troops from Fort Leavenworth, Kansas, to the Des Moines Military Tournament, etc.

Murtaugh, John A., maj.; Van Dusen, James W., capt.; and Fuller, Leigh, maj.; August 25, ordered to proceed with troops from Fort Riley, Kansas, to the Des Moines Military Tournament, etc.

Barney, Charles N., maj., September 6, left Fort Wadsworth, N. Y., enroute home awaiting retirement, being granted leave of absence to December 31, 1910.

Grubbs, Robert B., maj., September 1, reported on detached duty at Fort Sam Houston, Texas, from Camp at Leon Springs, Texas.

Hallett, Harley J., M.R.C., September 6, granted 30 days leave of absence terminating not later than November 3, 1910.

Baker, Charles L., M.R.C., September 2, now on duty in Sequoia, and the General Grant National Parks, will accompany Troop A, 1st Cavalry to the Presidio of San Francisco, and on arrival will report to the commanding officer of that post for duty.

Reynolds, Royal, lieut., Sept. 7, ordered to Presidio of San Francisco, for temporary duty.

Allen, John H., maj., Sept. 7, left Fort Myer, Virginia, on ten days leave of absence.

Walker, Thomas C., M.R.C., September 7, granted leave of absence for two months to take effect on arrival in the United States.

Casaday, George H., D.S., September 3, left from duty at Fort Baker, California, enroute to the Philippine Islands, for duty.

Medical Corps, U. S. Navy

Changes for the week ended Sept. 3, 1910:

Fitts, H. B., medical inspector, placed on the retired list from Aug. 23, 1910.

Grove, W. B., surgeon, detached from the Naval Training Station, Newport, R. I., and ordered to duty at the Naval Medical School Hospital, Washington, D. C.

Leys, J. F., surgeon, detached from temporary duty in the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Training Station, Newport, R. I.

Cather, D. C., P. A. surgeon, detached from the Naval Academy and ordered to the *Iowa*.

Pryor, J. C., surgeon, detached from the Navy Yard, Pensacola, Fla., and ordered to the Bureau of Medicine and Surgery, Navy Department.

Jenkins, H. E., asst.-surgeon, detached from the *Franklin* and ordered to the *Montana*.

Hiermesch, H. R., asst.-surgeon, detached from the *Montana* and ordered to temporary recruiting duty at Knoxville, Tenn.

Thomas, G. E., asst.-surgeon, detached from the *Dubuque* and ordered to temporary duty at the Naval Hospital, Mare Island, Cal.

Changes for the week ended Sept. 10, 1910.

McDonnell, W. N., passed asst.-surgeon, detached from the Naval Academy and ordered to the *Massachusetts*.

Boyd, J. C., medical director, detached from command of the Naval Medical School, Washington, D. C., and ordered to duty as a member of the retiring board, navy yard, Washington, D. C.

Wise, J. C., medical director, detached from duty as a member of the naval retiring board, navy yard, Washington, D. C., and directed to wait orders.

Gatewood, J. D., medical inspector, detached from duty on board the *California* as fleet surgeon of the Pacific Fleet and ordered home to wait orders.

Norton, O. C., medical inspector, detached from the navy and marine recruiting stations, New York, and directed to wait orders.

Wieber, F. W. F., medical inspector, detached from the naval recruiting station, Baltimore, and ordered to duty at the naval and marine recruiting station, New York.

Lowndes, C. H. T., surgeon, detached from the naval dispensary, Naval Medical School Hospital, Washington, D. C., and ordered to the Baltimore Naval Recruiting Station.

Freeman, G. D., surgeon, detached from the *Montana* and ordered to duty at the naval dispensary, Naval Medical School Hospital, Washington, D. C.

Fiske, C. N., surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to duty at the Naval Medical School, Washington, D. C.

Smith, C. G., surgeon, detached from the naval hospital, Newport, R. I., and ordered to the *Montana*.

Cohn, I. F., passed asst.-surgeon, detached from naval hospital, Philadelphia, Pa., and ordered to the *Castine*.

Hull, H. F., passed asst.-surgeon, detached from the *Paducah* and ordered to the *Panther*.

Grieve, C. C., passed asst-surgeon, detached from the navy recruiting station, Chicago, and ordered to the *Prairie*.

Dean, F. W. S., passed asst.-surgeon, detached from the *Prairie* and ordered to the naval magazine, Iona Island, N. Y.

Manchester, J. D., passed asst.-surgeon, detached from the *Panther* and ordered to the navy recruiting station, Chicago.

Foster, T. G., passed asst.-surgeon, detached from the naval hospital Mare Island, Cal., and ordered to duty at the naval hospital, Canacao, P. I.

White, E. C., passed asst.-surgeon, detached from the navy recruiting station, St. Louis, and ordered to temporary duty at the naval hospital, Mare Island.

Boland, M., asst.-surgeon, detached from the *Castine* and ordered to duty at the naval hospital, Philadelphia.

Miller, J. T., asst.-surgeon, detached from the *North Carolina* and ordered to the navy recruiting station, St. Louis.

Kelley, H. L., asst.-surgeon, detached from the naval hospital and ordered to the navy yard, Mare Island, Cal.

McMullin, J. J. A., asst.-surgeon, detached from the naval magazine, Iona Island, N. Y., and ordered to the *North Carolina*.

Bloedorn, W. A., asst.-surgeon, detached from the navy yard, Mare Island, Cal., and ordered to duty at the naval hospital, Canacao, P. I.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended Sept. 7, 1910:

Pettus, W. J., asst.-surgeon-general, while on leave in England, directed to proceed to Southampton, Liverpool and Glasgow, on special temporary duty relative to measures for the prevention of the introduction of Asiatic cholera into the United States, and then resume leave status.

Kerr, J. W., asst.-surgeon-general, detailed to represent the Service at the annual meeting of the American Public Health Association, to be held in Milwaukee, Wis., Sept. 5-9, 1910.

Carter, H. R., surgeon, detailed to proceed to certain ports in Europe on special temporary duty relative to measures for the prevention of the introduction of Asiatic cholera into the United States.

Wasdin, Eugene, surgeon, granted 1 month's leave of absence from Aug. 22, 1910, on account of sickness.

Cobb, J. O., surgeon, directed to proceed to Manitowoc, Wis., on special temporary duty. Detailed to represent the Service at the annual meeting of the American Public Health Association, to be held in Milwaukee, Wis., Sept. 5-9, 1910.

Geddings, H. D., surgeon, directed to proceed to Marseilles and Genoa, Italy, on special temporary duty relative to measures for the prevention of the introduction of Asiatic cholera into the United States, and then rejoin station at Naples, Italy.

McMullen, John, P. A. surgeon, granted 21 days' leave of absence from Sept. 3, 1910.

Anderson, John F., P. A., surgeon, granted 1 day's leave of absence from Sept. 2, 1910, under paragraph 189, Service Regulations.

Wille, C. W., P. A., surgeon, directed to proceed to Ashtabula, Ohio, on special temporary duty.

Lloyd, Bolivar J., P. A. surgeon, granted 29 days' leave of absence from Aug. 25, 1910.

Spratt, R. A., P. A., surgeon, granted 1 day's leave of absence, Aug. 27, 1910, on account of sickness.

Frost, W. H., P. A. surgeon, directed to proceed to Grundy Center, Iowa, on special temporary duty.

Mullan, E. H., P. A. surgeon, granted 5 days' leave of absence from Aug. 1, 1910, under paragraph 191, Service Regulations.

Ashford, F. A., P. A. surgeon, granted 1 month's leave of absence from Aug. 30, 1910.

Kolb, Lawrence, asst.-surgeon, granted 7 days' leave from Aug. 28, 1910, under paragraph 191, Service Regulations.

Drew, A. D., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 15, 1910.

Marr, H., acting asst.-surgeon, granted 15 days' leave of absence from Sept. 5, 1910.

Moorer, M. P., acting asst.-surgeon, granted 6 days' leave of absence from Aug. 14, 1910.

O'Neill, Arthur A., acting asst.-surgeon, granted 10 days' extension of leave of absence from Aug. 9, 1910, on account of sickness.

Ransom, S. W., acting asst.-surgeon, granted 30 days' leave of absence from Sept. 1, 1910.

Schuster, R. L., acting asst.-surgeon, granted 3 days' leave of absence from Sept. 7, 1910.

Walker, T. D., acting asst.-surgeon, granted 1 day's leave of absence, Sept. 8, 1910.

Wetmore, W. O., acting asst.-surgeon, granted 3 days' leave of absence from Aug. 11, 1910, under paragraph 210, Service Regulations.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthalm. and Oto-Laryn., Cincinnati, Sept. 19-21.
Amer. Asso. of Obstetricians and Gynecol., Syracuse, Sept. 20-22.
Amer. Roentgen Ray Association, Detroit, September 28—October 1.
American Association of Railway Surgeons, Chicago, October 19-21.
Medical Association of the Southwest, Wichita, Kan., October 11-12.
Michigan State Medical Society, Bay City, September 28-29.
Minnesota State Medical Association, Minneapolis, October 6-7.
Nevada State Medical Association, Lake Tahoe, Cal., Sept. 19-21.
Pennsylvania, Medical Society of State of, Pittsburg, October 3-6.
Utah State Medical Association, Salt Lake City, October 3-4.
Vermont State Medical Society, St. Albans, October 13-14.
Virginia, Medical Society of, Norfolk, October 25-28.
West Virginia State Medical Assn., Parkersburg, Oct. 5-7.
Wyoming State Medical Society, Casper, September 27.

AMERICAN PUBLIC HEALTH ASSOCIATION

Thirty-Eighth Annual Meeting, Held at Milwaukee, Wisconsin, Sept. 6-9, 1910

The President, DR. CHARLES O. PROBST, Columbus, Ohio, in the Chair

Addresses of Welcome

At the general meeting of the Association, which was open to the public, addresses of welcome were delivered on behalf of the city of Milwaukee, by Hon. Emil Seidel, Mayor; on behalf of the State of Wisconsin, by Judge William J. Turner, and on behalf of the medical profession by Dr. W. A. Batchelor.

The responses to these addresses of welcome were made on behalf of the United States, by Dr. Richard Lewis, Raleigh, N. C.; on behalf of the Dominion of Canada, by Dr. Frederick Montizambert, Director General of Public Health, Ottawa, Canada; on behalf of the Republic of Mexico, by Dr. J. E. Monjaras, Mexico City, Mexico, and on behalf of the Republic of Cuba, by Dr. Frederic Torralbas, Havana, Cuba.

Officers Elected

The following officers were elected: President, Dr. Robert M. Simpson, Winnipeg, Manitoba; first vice-president, Dr. Fernando Lopez, Mexico City; second vice-president, Dr. John F. Anderson, Washington, D. C.; third vice-president, Dr. Gerhard A. Bading, Milwaukee, Wisconsin; secretary, Dr. William C. Woodward, Washington, D. C.; treasurer, Dr. Frank W. Wright, New Haven, Connecticut.

Havana, Cuba, was selected as the place for holding the next annual meeting.

Report of the Joint Committee on Mailing Infectious Material

DR. JOHN F. ANDERSON, Washington, D. C.: The proposed modifications of the regulations for the mailing of infectious material have finally been promulgated by the postoffice department under date of April 22, 1910. The committee believes that its efforts have resulted in the promulgation of regulations which are a decided improvement over those formerly enforced. The regulations have been considerably simplified. The committee was successful in having the privileges of the mails for the transmission of infectious material extended to include federal, state, municipal and other laboratories on the issuance of a formal permit by the Postmaster General.

The report was accepted, and the committee discharged.

Studies on Self-Purification of Streams

DR. G. F. RUEDIGER, Grand Forks, N. D., detailed a series of experiments on this subject, and then presented the following conclusions: Colon bacilli and typhoid bacilli disappear much more rapidly from polluted river water during the summer months than during the winter months when the river is covered with ice and snow. The destruction of these organisms in the river water during the summer months is in large measure due to the growth of microscopic plants and other organisms which apparently give off dialyzable substances which are harmful to the *B. coli* and *B. typhosus*. That such substances are given off by the saprophytic bacteria was clearly shown by Frost several years ago, and my experiments confirm his by attacking the problem in a slightly different way. These effects are lost in the winter as no growth takes place at 0°C. The direct rays of the sun also are an important factor and their effects are entirely lost when the river is covered with a thick layer of ice and snow.

The practical value of this investigation is evident. It explains why some of our northern cities where sewage polluted river water is used in the water works system are more frequently troubled with outbreaks of typhoid fever during the winter months. This was illustrated at Minneapolis last winter, and I believe was true at Lawrence, Mass., before the installation of the filter. When bacteriologic analyses of sewage-polluted river water are to be made at the site of a proposed water works intake pipe, it is important that samples should be collected and analyzed both in the winter and in the summer. Analyses of samples collected during the summer do not give reliable information in regard to the

condition of that water when the river is covered with ice and snow. The analyses show that the pathogenic bacteria from the sewage travel several times as far in the water under the ice, before they are destroyed, as they will in an open river during warm weather.

DISCUSSION

DR. H. W. HILL, Minneapolis: The experiments which we undertook confirm the observations and conclusions of Dr. Ruediger regarding winter river typhoid and summer typhoid. We have found that typhoid bacili may die out in going down the river in summer under conditions where they would exist during the winter.

DR. PETER H. BRYCE, Ottawa, Canada: I notice that the author seemingly did not take into account the question of sedimentation during the two days in the river. Pettenkofer's tests long ago at Munich showed that about 90 per cent. of all bacteria in water by dilution and by sedimentation had disappeared within a distance of 10 miles.

DR. E. C. LEVY, Richmond, Va.: At the Winnipeg meeting of this Association Dr. Freeman and I presented a joint paper on typhoid in the south, with special reference to the disease in Richmond. In that paper we brought out the point which has been explained here today, but made no attempt to explain why water-borne typhoid was especially a disease of winter months, though we proved to our satisfaction that such was the case. Our opinion was arrived at purely and simply from an epidemiologic standpoint; we had no laboratory facts to corroborate it. During the years since that time our views have been confirmed in every way to such an extent that in Richmond, after we have passed the winter months, we do not worry about water typhoid.

DR. G. F. RUEDIGER, Grand Forks, N. D.: I do not think that the factor of sedimentation would alter the experiments in any way; so far as I can see, there would be as much sedimentation in winter as in summer. This factor need not be considered in this particular study. Another study might be made based on the factor of sedimentation.

The Sanitary Registration of Houses in Mexico

DR. J. E. MONJARAS, Mexico City: The board of health in Mexico has made great progress in the sanitary records of houses in that city. The plan of the city shows the houses in which persons have died of tuberculosis. Each house is shown on the plan by a number which corresponds to the number of cases observed in that house, and each one has its separate file containing all the details of cases as well as the work which has been ordered to improve the sanitary conditions of the houses. With this plan it is possible to show the number of deaths caused by tuberculosis or any of its allied affections from the year 1891, with the ages and sex of those who died, and the wards in the City of Mexico in which those deaths were recorded. The sanitary registry of the houses, therefore, constitute a necessary institution in all cities by the aid of which the sanitary and municipal authorities, as well as the general public, can obtain easy and certain knowledge of the houses which constitute foci of infection.

DISCUSSION

DR. FREDERICK TORRALBAS, Havana, Cuba: The work Dr. Monjaras has described has been carried on in Havana for some years. It is the duty of the sanitary inspector to obtain the complete history of houses. An inspection is made of from 1,800 to 2,000 houses a day, so that cases of tuberculosis are easily traced.

Sanitation of Bakeries and Restaurant Kitchens in Chicago

MR. CHARLES B. BALL, Chicago: In the Chicago Department of Health's experience with bakeries and restaurant kitchens we are led to the conclusion that new installations of restaurant kitchens are required. Ample space must be provided in which the employees may perform the various operations. The contingency of expansion at a future date should be considered, as the tendency to enlarge the dining room, without providing additional kitchen facilities, is found in a great many cases. The arrangement of the various appliances in their relation to each other should insure the isolation of dishwashing and garbage storage from the handling of food. Adequate provision must be made for the removal of cooking odors, not alone from the ranges, but also from vegetable boilers, so as to avoid nuisance in other parts of the building and in the neighborhood. The Underwriters' Association now requires that ventilation dusts from large ranges be built of heavy iron plate and carried through the top of the building without any other connections, so that the grease and soot may be burned out of them as from a chimney flue, without incurring fire danger to other rooms. Ample toilet facilities and wash-rooms, separate for each sex and apart from those provided for the public, must be furnished. The wash-basins should be located outside of the toilet rooms in order that it may be apparent to those in charge that the hands are cleansed after leaving the toilets. Proper locker rooms, with exceptional means of ventilation, must be provided in order to avoid the nuisance of the storage of either street or working clothes in tightly closed cupboards. Well-ventilated refrigerators are required in numbers sufficient to afford separation for the different classes of food and especially for milk and butter. The best examples of the application of these rules of design to new bakeshops and kitchens are to be found in upper stories, preferably the top story, of certain high buildings. Such installations of superior type are at present by no means rare.

Practical Methods of Supervising the Milk Supply of Cities

MR. J. BOSLEY THOMAS, Baltimore, discussed permits for the sale of milk and cream; methods of keeping records; collecting samples and recording results; methods of transporting and delivering milk; communicable diseases; diseases in houses where milk is delivered in bottles; bovine tuberculosis; supervision of dairy farms; butter-fats standards, and said that while there are many admirable methods used by various authorities in the administrative control of the milk supply, there is little or no standardization of these methods. It therefore seems advisable, he said, that some representative society or body should appoint a committee to establish or recommend standard practical methods that would be capable of universal use.

Saving Children From Milk-Borne Diseases

MR. NATHAN STRAUS, New York: The old city of New York, now the Borough of Manhattan, has established a new record in the saving of the lives of babies. Notwithstanding unusually severe periods of intensely hot weather the past summer, there have been fewer deaths of childrn under five years than in any preceding summer, and for the first time in the history of the city the summer mortality has fallen to a rate less than 50 per thousand per annum. When I first undertook to protect the babies of New York from milk-borne diseases by supplying pasteurized modified milk in 1892, the summer saw the dying of 6,612 children under 5 years, making the rate per thousand per annum 136.1. With the steadily increasing use of pasteurized milk there has been a steady decline in infant mortality, until the summer just ended showed only 3,900 deaths in a population of children larger by 125,000 than that of 1892. In other words, in 1892, 964 children out of every 1,000 survived the summer, while in 1910 there were 988 who escaped death out of each thousand. In my experience the saving of children from milk-borne diseases warrants the assertion that the pasteurization of milk supplies of our cities, under careful health department supervision, would infallibly reduce the death rate.

President's Address: A Renaissance in Health

DR. CHARLES O. PROBST, Columbus, Ohio: A renaissance in health is at hand. Never before has the public shown such interest and enthusiasm in health measures. Never has it so nearly reached a realization of the immense possibilities in preventing sickness and prolonging life. The time is ripe for cooperation of the widest sort. Without attempting even to outline a plan for cooperation, I would recommend that by committee or otherwise the question be investigated of the possibility of uniting or concentrating the efforts of the different national organizations in the four countries represented

whose work concerns in any large measure the promotion of the public health. If moral prophylaxis comes within the scope of social hygiene, the question of providing suitable amusement for the working people becomes of greatly increased importance. Especially is this true for working girls. The lack of such places in large cities is among the chief causes of the social diseases. The department of child hygiene of the Russell Sage Foundation, established in 1908, occupies a part of this field. Its purpose in part is to conduct researches and promote activities favorable to the physical, moral, and intellectual welfare of children, especially public recreation, and the health and progress of school children. This association stands for the highest possible standards in public health. In various ways it has given weighty support to many health movements for improving general health conditions, and notably in the interest of pure food and the establishment of a national health department. The family physician must long remain the chief instructor and most potent factor in preventing the spread of dangerous infectious diseases. The strongest nation, the one of greatest achievements, will in the end be the one that gives the greatest amount of intelligent care to the health of its subjects. Eventually all health interests should be administered by the government. If the first step towards the centralization, or at least the cooperation, of the many associations devoted to health problems can be taken at this meeting, it may be the means of hastening the day when every individual will be given time and opportunity for the pursuit of health and happiness, and the certain knowledge of how and where to find them.

Organization of the Pennsylvania State Department of Health

DR. SAMUEL G. DIXON, Harrisburg, Pa.: From July 22, 1907, to June 30, 1910, 32,247 poor tuberculous sufferers had received the skilled medical aid and the attention of trained nurses which the department's 115 dispensaries provide. The death-rate from tuberculosis in Pennsylvania has fallen from 134 to 120 per 100,000 of population in 4 years. This means a saving of 1,000 lives annually. From October, 1905, when the state began its free distribution of diphtheria antitoxin among the poor, down to Dec. 31, 1909, 20,794 patients with this dread disease, mostly little children were treated with the life-saving serum. We know by statistics that without antitoxin 42 out of every 100 of these children would probably have died, but with the aid of the state's antitoxin the death-rate among these poor little sufferers was reduced to 8.48. Free antitoxin was also given to 15,125 patients, mostly children, who had been in contact with the disease. All but a very few of these were absolutely protected against diphtheria. A very low estimate of the saving of child life resulting from the state's free distribution of diphtheria antitoxin since 1905 is about 8,000 lives, a pretty good investment of the tax payer's money. And what of typhoid fever in view of all this work for pure water? In 1906, 56.5 out of every 100,000 people died from this disease; in 1907, 50.3; in 1908, 34.4; and in 1909, 23.9. That is, there are now living 2,363 people who, had the death rate of 1906 prevailed in 1909, would have died from typhoid. In 1906 and 1907, the death rate in Pennsylvania per 1,000 of population was 16.5; in 1908, it had dropped to 15.7 and in 1909 to 15.3.

Executive Methods in Preventive Medicine

DR. HENRY B. HEMENWAY, Evanston, Ill.: Health administration was formerly local in nature. The science of public health has now advanced far beyond administration, especially in this country. The American law requires a separation of the three branches of government. Health administrators, being of the executive branch, have no legislative power. They may not, therefore, issue any orders, or regulations except as distinctly provided in the laws under which they are acting. All health authority is derived from the police power of the state. Police power is a system of precaution for the prevention of crimes and calamities. It is a necessary but also a dangerous power; and because of the danger to individual liberty, the courts are inclined to scrutinize its operations closely to prevent abuse. The police power of public health starts from the idea of nuisance, and presupposes legislative determination in great detail. Even though administered by municipal officers, public health work is essentially state in nature; and in the absence of special constitutional provisions to the contrary, the state has the right to appoint and regulate the acts of municipal health officers. The protection of the state against damage suits is extended to all health officials, so long as they act within the law, even though error has been committed, and damage results to individuals. As compared with other countries, American state executives are ill-organized and weak; and one of the weaknesses is shown in the tendency to the appointment of boards, often serving without pay. Since executives have no legislative power, an executive board lacks in responsibility, decision, activity and dispatch, without compensatory advantage. There is no more reason why a physician should donate his public health service than that a lawyer should serve without pay as a judge, or a banker should give the use of the money needed for public improvements. Health laws should be enacted by the state legislature. The entire health administration of a state should be recognized as one body, having a single head to whom all local and district officials are responsible. Every man should be held responsible for a definite portion of the work.

Executive duties are either ministerial or discretionary. If ministerial, the officer may only do that which is required. If discretionary, he may do anything within that discretion; but neither his acts nor legislation for his guidance, may be arbitrary or unreasonable. If the officer acts beyond the provision of the law, he may be sued as a private wrong doer. Health legislation should be definite, not in general terms, best to safeguard individual liberty.

Matters of technical detail in the work of the office may be largely left to subordinate; but the executive must personally and frequently decide on questions of administration. In other words, the head of the department should be a professional administrator with a broad knowledge of sanitary science, not merely a sanitarian or a party politician. At least once a year there should be a conference of state and district officers, at which proposed legislation may be discussed and prepared for presentation to the legislature for enactment.

General Discussion on Public Health Matters

DR. C. A. HARPER, Madison Wis., discussed the relation between state and municipal boards of health, saying that the interchange of ideas, and the knowledge required by each health officer in knowing how other health officers do their work and meet certain emergencies, fully justifies the labor and expense incident to holding state or district conferences. If the health officer expects to impart knowledge to others, he must know his subject thoroughly and realize the important rôle which sanitation and public hygiene play in the prevention of diseases.

PROF. E. H. S. BAILEY, North Dakota, spoke of the advantages of cooperation between the state board of health and state universities.

DR. GUSTAV F. RUEDIGER, Grand Forks, N. D., spoke of the relation of the state university of North Dakota to the State Board of Health, and favored placing the state board of health laboratory under the control and regulation of the state university, under the direction of the professor of bacteriology and pathology.

DR. CHARLES A. HODGETTS, Ottawa, Canada, pointed out the functions of the Canadian Commission of Conservation and Public Health.

DR. H. W. HILL, Minneapolis, spoke of the relations of universities to public health work.

MAYOR SEIDEL, Milwaukee, Wis., discussed social economies and public health, and said:

and mineral deposits. These, with machinery, are important factors in wealth production; but the most important factor of all in wealth production is human labor. Without labor of hand and labor of brain applied to raw material, there is no civilization thinkable. The greatest of all natural resources is human life with its accompaniment of labor. It is good and excellent work to conserve land and timber and water

Land has a value. Timber has a value, and so have water

utilities; but it is far more important, and far more fundamental, to conserve human life and make it more efficient and give it added ability and power to create.

MR. FREDERICK ALMY, Buffalo, N. Y., spoke of the interrelation of national organizations working in the interest of health.

DR. FREDERICK MONTIZAMBERT, Director-General of Public Health, Canada, said that the administration of public health in Canada is joint between the dominion and the provinces. The administration of the subject of quarantine pertains solely to the Dominion Government, including the inspection and treatment of passengers, crews and vessels from abroad arriving at the different seaports on the Atlantic and Pacific Coasts, and of the persons and trains entering Canada over the international frontier. Leprosy is dealt with by the federal government. The adulteration of foods and drugs is dealt with by the Department of Inland Revenue. Infectious and other diseases occurring within the Dominion are under the administration of the provincial and municipal authorities.

(To be continued)

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Conservation of Health Through Prevention of Accidents

The National Electric Light Association, desiring to obtain the latest possible information regarding the best methods of preventing accidents to workmen, commissioned Dr. William H. Tolman, director of the American Museum of Safety, to investigate the German governmental system of workman's insurance with special reference to accidents, sickness and invalidity, including old-age pensions. Dr. Tolman's report is summarized in the September number of *Safety*, the bulletin of the American Museum of Safety. After presenting a large array of statistics, Dr. Tolman summarizes his conclusions:

"It requires no prophet to prophecy that problems of accident prevention and workman's compensation are the most important ones confronting our country to-day. Until an harmonious and satisfactory solution has been found for them, there will be unrest and acrimony in American industrialism. There is no getting away from this question. It has got to be met.....Germany has worked over this question for six decades and this year is celebrating its silver jubilee of twenty-five years of practical demonstration to her own satisfaction of her system of social insurance."

Statistics furnished by the director of the Imperial Bureau of Statistics of Germany show that in the past twenty-five years, German employers have paid for social insurance and accident liability $1,100,000,000. Workmen have paid $981,000,000, and the German Empire has paid $146,000,000. Receipts from interest and other incomes have amounted to $231,000,000, making a total for twenty-five years of $2,449,000,000 for workingmen's insurance. Of this amount insured workmen have received $1,740,000,000, of which $980,000,000 were paid for care during sickness and restoration to health.

Dr. Tolman says that while Germany is regarded as the exponent of war she is in reality one of the greatest conservators of industrial peace and content. The billions of dollars spent for workmen's insurance and the care of the sick and injured were spent because it paid. In Germany every life saved is a national asset. Dr. Tolman asserts that experience in Germany confirms his statement that 50 per cent. of the accidents in American industries are preventable and that there should be in New York a clearing-house for the best world experience for the prevention of accidents and the promotion of sanitation. In contrast to the views and practices prevailing in Germany is the record of 35,000 deaths and 2,000,000 accidents in the United States during 1907, which facts led one of the most influential German trade associations, in a manual on accident prevention to give utterance to the following criticism of American state factory inspection:

"Everywhere in America, in the railways, factories and building trades, we can see how little regard is paid to human life. It is the cheapest thing in the world. Thousands of times do we read in the American papers, human life is as cheap as dirt. American culture and thought is founded on a purely capitalistic basis. Ours rests on a patriotic foundation. Property and things have the highest value in America and these, before all, are protected by the law. A man must care for his own safety himself."

Dr. Tolman also emphasizes the enormous amount of preventable sickness in the United States, over 3,000,000 people being ill annually from preventable causes of which number 1,000,000 are in the working period of life. A conservative estimate of their loss of wage-earning efficiency every year amounts to $400,000,000. This social and economic waste is caused by occupational diseases, industrial poisons, failure to remove dust and noxious fumes, impure drinking-water, poorly ventilated and lighted rooms and generally unsanitary conditions. The unhygienic houses in which many wage-earners are compelled to live, as well as impure foodstuffs, dirty and dusty streets and lack of parks and playgrounds further aggravate the problem. Dr. Tolman states that the elimination of preventable accidents and preventable diseases will result in enormous saving of life and capital.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

First Month—Second Weekly Meeting

VISCERAL SYPHILIS

SYPHILIS OF NERVOUS SYSTEM

BRAIN AND CORD: Pathology: (a) Gummata, size, location, number, microscopic changes, occurrence in brain, in cord; (b) arteries, changes in vessels, secondary changes in adjacent structures; (c) sclerosis, degenerative fibroid changes.

NERVES: Changes in sheath, in nerve fiber. Nerves most frequently involved. Diagnostic features of syphilis of central nervous system.

SYPHILIS OF RESPIRATORY SYSTEM

NOSE: Pathologic changes; symptoms.

LARYNX: Clinical differentiation from tubercular and cancerous laryngitis.

TRACHEA AND BRONCHI: Symptoms, diagnosis.

LUNGS: (a) "White pneumonia" of congenital syphilis; (b) acquired syphilis, gummata and chronic interstitial pneumonia. Differentiate from pulmonary tuberculosis.

SYPHILIS OF CIRCULATORY SYSTEM

HEART: Pathologic changes.

ARTERIES: (a) Gummata, in large vessels, microscopic changes, relation to aneurism; (b) smaller vessels: (1) nodular periarteritis, (2) gummatous endarteritis, (3) obliterative endarteritis.

SYPHILIS OF ABDOMINAL ORGANS

DIGESTIVE TRACT: Stomach; intestines.

LIVER: In congenital syphilis; in acquired syphilis.

SPLEEN.

SYPHILIS OF GENITOURINARY TRACT

KIDNEY: Acute nephritis,, amyloid degeneration, gummata.

TESTICLES AND EPIDIDYMIS.

SYPHILIS OF BONES AND JOINTS

BONES: Periostitis, rarefying ostitis, gummatous involvement of bone. Dactylitis.

JOINTS: Synovitis, acute and chronic. Gummatous arthritis.

State Boards of Registration

COMING EXAMINATIONS

GEORGIA: Regular, The Capitol, Atlanta, October 11. Sec., Dr. I. H. Goss, Athens; Homeopathic, Atlanta, October 3. Sec., Dr. R. E. Illman, 153 Whitehall Street.

IDAHO: Boise, October 4. Sec., Dr. O. J. Allen, Bellevue.

ILLINOIS: Coliseum Annex, Chicago, October 19-21. Sec., Dr. James A. Egan, Springfield.

KANSAS: Topeka, October 13. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, October 18-19. Sec., Dr. A. B. Brown, 508 Baronne Street.

MICHIGAN: Lansing, October 11-13. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: State University, Minneapolis, October 4-6. Sec., Dr. W. S. Fullerton, St. Paul.

MISSISSIPPI: Jackson, October 11-12. Sec., Dr. S. H. McLean.

MISSOURI: Capitol Building, Jefferson City, September 20-22. Sec., Dr. Frank B. Hiller.

MONTANA: The Capitol, Helena, October 4. Sec., Dr. Wm. C. Riddell.

NEW JERSEY: State House, Trenton, October 18. Sec., Dr. H. G. Norton.

NEW YORK: Albany, September 27-30. Chief of Examinations Division, Dr. Charles F. Wheelock.

WYOMING: State Capitol, Cheyenne, October 12-14. Sec., Dr. S. B. Miller, Laramie.

Is Toxicology Taught in Medical Colleges?

The following is abstracted from the *Bulletin of the Illinois State Board of Health:*

That toxicology, an important branch of medical science, is seriously neglected in the curricula of some medical schools has been more than once evidenced in the examinations of the Illinois State Board of Health. As a case in point, question 5 of the examination on chemistry, given by the State Board of Health, on April 14, 1910, read as follows:

"5. In the examination of stomach contents, in case of suspected poisoning, (a) How may strychnin be recognized? (b) How atropin?"

There were present 125 applicants, representing 26 medical colleges, 10 of Illinois and 16 of other states.

Realizing that a knowledge of the toxic action of strychnin and its determination by a chemical test is of the utmost importance to a physician, it was presumed by the examiner that the majority, if not all, of the applicants would give a correct answer to the question pertaining to this drug.

The question as to atropin was added chiefly for the purpose of determining the applicants' ability to distinguish atropin from strychnin. It was not thought that many would answer this question correctly, although the fact that in one reliable test for atropin the same reagents are used as in a test for strychnin, led the examiner to assume that some, at least, would show a knowledge of the test for atropin.

But the results proved that the examiner's faith was not well-founded. There are five reliable chemical tests for the determination of strychnin and two for atropin. These tests may be found in the Pharmacopeia of the United States, latest revision, and some are published in the "quiz compends," so often in the hands of students.

Surprising as it may be not one applicant described correctly any one of the five tests for strychnin above referred to. Only four named the proper substances or reagents employed in the tests, but even these applicants failed to describe the reaction.

The question as to atropin was "passed up" by the greater number. Some wrote at it, but not one of the 125 physicians gave even an approximately correct answer. Only one applicant named the reagents employed in the tests set forth in the Pharmacopeia, and he failed to describe the reaction.

Several physicians who "wrote at" the question on atropin confined their remarks to physical tests. The most popular answer on these lines was, in substance, as follows:

"Drop some of the filtrate into the eye of a lower animal, and dilation of the pupil will result."

It would appear that not only toxicology, but materia medica, also, was lacking in quite a number of the medical colleges.

In this day, when the laboratory-made physician is being so much exploited, it might be well for colleges to devote time and attention to more of those things that are really "worth while" to the future physician.

Washington January Report

Dr. J. Clinton McFadden, former secretary of the Washington State Board of Medical Examiners, reports the written examination held at Spokane, Jan. 4-6, 1910. The number of subjects examined in was 10; percentage required to pass, 60 in each subject. The total number of candidates examined was 105, of whom 81 passed, including 2 osteopaths, and 24 failed, including 2 osteopaths. The following colleges were represented:

College	Year Grad.	Total No. Examined.
PASSED		
Coll. of Phys. and Surgs., San Francisco	(1907)	1
Coll. of Phys. and Surgs., Los Angeles	(1908)	1
Yale Medical School	(1903)	1
Columbian University, Washington, D. C.	(1902)	1
Medical College of Georgia	(1909)	1
Rush Medical College (1906)	(1902) (1904) (1908)	5
Coll. of P. & S., Chicago (1906)	(1884) (1898) (4, 1909)	6
Northwestern University Medical School (1902)	(1899) (2, 1907) (3, 1908)	8
American Medical Missionary College	(1904)	1
Keokuk Medical College	(1898)	1
College of Physicians and Surgeons, Keokuk	(1909)	1
University of Iowa, College of Medicine (1904)	(1903) (1908)	3
Kansas Medical College	(1906)	1
Kentucky School of Medicine	(1905) (1908)	2
Louisville and Hospital Medical College	(1908)	3
Louisville Medical College	(1898)	1
Baltimore Medical College	(1896)	1
Coll. of P. & S., Baltimore	(1891)	1
Johns Hopkins University	(1908)	1
Harvard Medical School	(1907) (1908)	2
University of Michigan, Department of Medicine and Surgery (1877) (1900) (1907)	(1908) (1909)	5
University of Minnesota, College of Medicine and Surgery (2, 1900) (1904) (2, 1906)	(1908)	5
Ensworth Central Medical College	(1905)	1
St. Louis College of Phys. and Surgs.	(1909)	1
Washington University, St. Louis	(1904)	1
Albany Medical College	(1898)	2
Columbia University, College of Physicians and Surgeons (1902)	(1904)	2
Miami Medical College	(1904)	1
Columbus Medical College	(1889)	1
Medical College of Ohio	(1875) (1896)	1
Western Reserve University	(1889) (1908)	2
University of Oregon	(1908) (2, 1909)	3
Willamette University	(1907)	1
Jefferson Medical College	(1898) (1906)	2
University of Pennsylvania	(1891) (1905)	2
Vanderbilt University	(1908)	1
University of Vermont	(1907)	1
Univ. of Toronto, Ontario	(1900) (1905) (1908)	3
McGill University	(1907)	1
University of Manitoba	(1898)	1
FAILED		
Rush Medical College	(1891) (1899)	2
Bennett Medical College, Chicago	(1899)	1
Keokuk Med. Coll., Coll. of P. & S.	(1907)	1
Hospital College of Medicine, Louisville	(1905)	1
Kentucky School of Medicine	(1889) (1906)	2
University of Louisville	(1905)	1
Tufts College Medical School	(1909)	1
University of Michigan, Department of Medicine and Surgery (2, 1883)	(1908)	3
Saginaw Valley Medical College	(1905)	1
Michigan College of Medicine and Surgery	(1898)	1
Marion-Sims College of Medicine	(1897)	1
University Medical College, Kansas City	(1903)	1
Kansas City Hahnemann Medical College	(1909)	1
Tennessee Medical College (1898)	(1900)	2
University of Nashville	(1902)	1
Coll. of P. & S., Dallas	(1908)	1
Trinity Medical College, Toronto	(1902)	1

Vermont July Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the written examination held at Burlington, July 12-14, 1910. The number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 17 of whom 16 passed and 1 failed. The following colleges were represented.

College.	Year Grad.	Per Cent.
PASSED		
Baltimore Medical College	(1910)	81.4
Harvard Medical School	(1909)	85.5
University of Vermont, (1910) 77.4, 80.2, 80.4, 82.8, 83.7, 84, 84.4, 84.4, 84.6, 85.1, 86.8, 88.		
Laval University, Quebec	(1906)	83.1
Royal College of Physicians and Surgeons, England	(1910)	83.9
FAILED		
University of Vermont	(1910)	70.1

Idaho April Report

Dr. O. J. Allen, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, April 5-6, 1910. The number of subjects examined in was 11; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 38 of whom 24 passed and 14 failed. The following colleges were represented:

PASSED			
College.	Year Grad.		Per Cent.
Denver and Gross Coll. of Med.	(1908)	76; (1909)	80
George Washington University	(1907)		77
Northwestern University Medical School	(1890)	75.9; (1906)	77; (1909) 80.
American Medical Missionary College	(1904)		77
College of Physicians and Surgeons, Chicago	(1896)		76.6
University of Michigan, Dept. of Med. and Surg.	(1897)	76; (1903) 75, 88.	
Hamline University	(1909)		86
Barnes University	(1906)	75; (1907) 75;	(1908) 75
Ensworth Medical College	(1908)		75
St. Louis College of Physicians and Surgeons	(1903)		79
University of Buffalo	(1904)		77
Eclectic Medical Institute, Cincinnati	(1897)		75
Starling-Ohio Medical College	(1909)		75
Willamette University	(1910)		76
Jefferson Medical College	(1906)		82
Medico-Chirurgical College of Philadelphia	(1902)		76
McGill University, Canada	(1889)		79

FAILED		
Rush Medical College	(1875)	55
Bennett Medical College	(1907)	62
Northwestern University Medical School	(1909)	54, 73
University of Iowa, College of Medicine	(1898)	59
Kentucky University	(1904)	70
Grand Rapids Medical College	(1899)	59
St. Louis University	(1905)	54
Ensworth Medical College	(1909)	44
University of Nebraska	(1903)	70
Lincoln Medical College	(1909)	68
Memphis Hospital Medical College	(1891)	31
University of Nashville	(1902)	72
University of Tennessee	(1894)	43

The following questions were asked:

HISTOLOGY

1. Define and locate neuroglia, areolar, hyaline, epithelium, adipose. 2. Describe adenoid tissue. 3. Give the histology of voluntary muscle. 4. Describe the structure of the spleen. 5. Describe a cross-section of the spinal cord.

ANATOMY

1. Describe briefly the lymphatic system, giving terminations. 2. Describe the sympathetic nervous system. 3. Name the arteries given off by the abdominal artery. 4. Describe the portal circulation in detail. 5. What is Scarpa's triangle, circle of Willis, Gimbernat's ligament, foramen of Winslow, pineal gland, thymus gland, mediastinum, olecranon, parathyroid, antrum of Highmore?

GYNECOLOGY

1. What important blood-vessels are in close relation to the female ureters, between the bifurcation of the common iliacs and the point where they enter the bladder, and what is their distance from the uterus from each other at that point? 2. Name the most frequent causes of pelvic inflammations, avenues of infection and tissues most likely to be invaded. 3. Give causes, symptoms of and treatment for contraction of the bladder in the female. 4. Describe the operation for eradication of cancer of the mammary gland. 5. Define colpitis, coloptosis, atresia, kraurosis, amenorrhea, menorrhagia, metrorrhagia, dysmenorrhea, salpingitis, proliferating. 6. Name the different varieties of dysmenorrhea mentioned in the textbooks and differentiate between the membranous form and an early abortion. 7. Describe in detail the examination of a case of suspected pelvic disease. 8. Give etiology, pathology and treatment of acute cystitis. 9. Give treatment for simple catarrhal vaginitis. 10. Differentiate between carcinoma of the cervix uteri and granular inflammation, myoma, polyp and condyloma.

PATHOLOGY

1. State the principal pathologic lesions of senility. 2. Uncinariasis, give etiology and pathology. 3. Give pathology of septicemia and of pyemia. 4. Acute anterior poliomyelitis; give pathology. 5. Describe the pathologic lesions of syphilis. 6. Arteriosclerosis; give etiology and pathology. 7. Describe the process of atrophy and of hypertrophy. Name types of each. 8. Describe the *Staphylococcus pyogenes aureus*. The *Streptococcus lanceolatus*. 9. What are infectious granulomata? Name and describe types. 10. State the pathology of Basedow's disease; of Addison's disease.

PRACTICE OF MEDICINE

1. Differentiate empyema from pulmonary abscess. 2. Differentiate aortic regurgitation from mitral regurgitation. 3. Make a diagnosis of aneurism of the descending aorta. 4. Describe the symptoms of tuberculous meningitis in full. 5. Give the symptoms and treatment of gastric ulcer. 6. Define hydronephrosis. State its causes and describe its treatment. 7. Give the symptoms of (a) acute lead poisoning; (b) chronic lead poisoning. 8. Define myxedema and give its treatment. 9. Describe the symptoms of a case of apoplexy due to cerebral hemorrhage. 10. Give the symptoms and treatment of locomotor ataxia.

PHYSIOLOGY

1. What is the chemical reaction of (a) blood, (b) urine, (c) sweat, (d) uterine secretion and (e) vaginal secretion? 2. Describe a complete physiologic revolution of the heart. What is the office of the columnæ carneæ? 3. How is asphyxia produced? What are the causes of death from asphyxia? Locate the respiratory center. 4. Name the secretions of the alimentary canal, their reactions, active principles and functions. 5. Describe by drawing or otherwise the different glands of the stomach. 6. What are the functions of the pancreas? What effect would extirpation of the pancreas have on digestion? 7. Describe the portal circulation. 8. What are the physiologic functions of the liver? 9. Describe the renal circulation. State the function of the (a) vas deferens, (b) the vesiculæ seminales and (c) the prostate gland. 10. Define (a) afferent, (b) efferent, (c) trophic, (d) inhibitory, (e) motor and (f) vasomotor nerve fibers.

OBSTETRICS

1. What is the character of the liquor amnii and what are its sources and uses? 2. Name the fetal envelopes from without inward. 3. Describe the fetal heart-sounds, give their rate, and state when and where they are best heard. 4. Give the etiology, symptoms and management of albuminuria of pregnancy without structural kidney lesions. 5. Describe and give the functions of the perineal body. 6. Describe the mechanism of labor in the R. O. P. presentation. 7. What is inversion of the uterus, what are its causes and symptoms, and how should it be treated? 8. Give the causes, symptoms and prognosis of rupture of the uterus during labor, and state how such an accident should be managed. 9. What are the symptoms and physical signs of ectopic gestation? From what must it be differentiated? What is the etiology? 10. State the causes, symptoms, pathology, treatment and sequelæ of puerperal phlebitis.

DIAGNOSIS

1. What is the practical import of hematuria and how can its source be diagnosed? 2. What conditions might cause alvine discharges containing fat? 3. What is the diagnostic significance of dropsy? 4. Describe the natural heart sounds. 5. Differentiate empyema from pulmonary abscess. 6. Give the causes of vertigo. 7. Give the area of normal heart dulness. What conditions increase the area of heart dulness? 8. In what diseases can we employ the microscope to advantage as an aid in diagnosis? 9. Give the differentiating points between rubeola and rötheln. 10. Give the physical findings in the different stages of lobar pneumonia.

MATERIA MEDICA AND THERAPEUTICS

1. Define and describe alkaloids. 2. Name five changes of the official Latin titles in the eighth revision of the U. S. P. 3. Give the official names of wahoo, pennyroyal, corn silk, oxgall, nutmeg, chamomile, hemlock, yellow jasmine and Rochelle salts. 4. Name the official preparations and doses of digitalis, cascara sagrada, ipecacuanha and strophanthus. 5. Give the official name, name the ingredients in and dose of Tully's powder. 6. State the composition and method of preparing liquor potassi citratis. Should it be freshly prepared? Has the strength of liquor ferri et ammonii acetatis been increased or decreased in the eighth revision of the U. S. P. and to what extent? 7. What is incompatibility in medicine, and what are the different kinds of incompatibles? Give an example of each. 8. Give the physiologic action and therapy of saline purgatives. 9. What therapeutic uses has chloroform other than as an anesthetic? 10. Explain the distinction between physiologic action and the therapeutic use of medicinal agents.

CHEMISTRY AND TOXICOLOGY

1. Give symbol, atomic weight and source of bismuth. (b) Name official preparations. (c) State how citrate of bismuth is prepared without giving proportions. 2. Give chemical formula, correct name and source of black oxid of manganese. 3. Give formula for chromic acid. (b) What is its appearance and solubility? (c) How used medicinally? (d) How is it affected by alcohol, ether, glycerin and other organic solvents? 4. Explain the chemical reaction that takes place in the preparation of spts. mindereri. (b) Also in the preparation of liquor potassii citratis. 5. Give common name for $ZnSO_4$, KNO_3, KBr, $KClO_3$, $ZN(OH)_2$, $Zn(C_2H_3O_2)_2$. 6. What would you do if you were called to a case of poisoning supposed to be caused by arsenic? (b) Strychnin? (c) By formaldehyd? 7. How is chloral made? (b) What is the best treatment of poisoning by it? 8. Give the antidote for poisoning by iodin, aqua ammoniæ, codein. 9. What is the source of creosote, its dose, purpose used and antidote? 10. Should or should not oil be used in phosphorus poisoning? Give reason for your answer.

HYGIENE

1. What relation do ground air and ground water bear to each other and to disease? 2. Name four diseases reduced to their minimum of frequency by the lowering of the ground water and purification of the soil? 3. What property do those pathogenic germs possess which retain their existence for long periods, outside a natural medium of growth? 4. What are the purposes fulfilled by food, and under what heads are the proximate constituents of food and the various food substances classified? 5. How many ounces av. of water free food are required for daily subsidence, (2) for ordinary work, (3) for laborious work? 6. What are the most favorable conditions for the care and preservation of milk? 7. Explain the germ theory of the contagia and how immunity is produced by the disease itself. 8. What are the objections to tent life for consumptive patients during the summer, and how can they be met by tent construction? 9. What beneficial effect has domestic cooking on tuberculous meat and milk? 10. Define zymotic, contagion, intoxication, specific, communicable, calorie, hygienic, sanitary.

Book Notices

STUDIES IN RELATION TO MALARIA. By Samuel T. Darling, M.D., Chief of Laboratory of the Board of Health, Department of Sanitation, Isthmian Canal Commission. Paper. Pp. 58. Washington: (Superintendent of Documents) Government Printing Office, 1910.

In many malarial regions it is important that the varieties of mosquitoes common to such regions should be recognized, their breeding-habits studied and a determination made of the species of anophelines capable of transmitting the disease. This is explained by Samuel T. Darling, chief of the laboratory of the board of health of the Canal Zone, in a pamphlet issued by the Isthmian Canal Commission. The anophelines insusceptible to malaria may be more limited in their choice of breeding-places than the other varieties, so that in the work of malarial mosquito destruction the latter may be disregarded, and attention given wholly to the breeding places of those varieties responsible for the transmission of malarial fever. With regard to man as a host it is necessary to have some knowledge of the limits of his infectiousness, i. e., the number of the sexual forms of the parasite in the blood necessary to infect susceptible mosquitoes. Other matters of importance are latent malaria, the effect of quinin on the parasites in man, the value of larvacides, algacides, agents destructive of ditch-grass, the size of screen mesh necessary to keep out mosquitoes, etc. After giving a minute description of the different species of anophelines and naming those susceptible to infection with the malarial parasites as shown by his experiments, together with the methods of conducting the experiments, collecting the larvæ, breeding, biting and infection experiments, estimation of gametes, care of the mosquitoes after biting, examining for zygotes, description of the malarial parasites in the mosquitoes, blood examinations, etc., Darling states that it was noticed that patients were discharged from the hospital after the temperature was normal but while the peripheral blood still contained more than a sufficient number of gametes to infect susceptible mosquitoes. Experiments were therefore carried out to determine the limit of infectiousness of such individuals, and it was found that persons with more than 2 gametes per centimeter must be regarded as gamete-carriers, and should not be discharged or treatment discontinued until the gametes were reduced well below the limit of infectiousness, which was determined to be 1 gamete for every 500 leukocytes. This question of the complete destruction of the sexual forms in man is generally overlooked, but is important in delimiting malaria, and may be accomplished by appropriate quinin treatment of all gamete carriers. Thirty grains of quinin sulphate daily is an efficient dosage for the purpose, although this quantity had no effect on the development of the parasites in infected mosquitoes fed on the blood of individuals taking this amount of quinin. The effect of quinin administration is to make the gametes in the tertian form, at least, gradually disappear from the peripheral blood of the patient by the destruction of the young forms, the gametes being phagocyted by splenic and hepatic endothelium; this will occur in from a few days to a few weeks, depending on the severity of the infection. There are never as many gametes in the peripheral blood in the tertian form as in the estivo-autumnal form. In the investigations to determine latent malaria among laborers at work it was found that from 8 to 13 per cent. were carriers of the parasites, chiefly of the tertian variety, or in the proportion of four to one of the estivo-autumnal. It is this latent, untreated malaria in every tropical community which contributes largely to the infection of anophelines when, after the onset of the rainy season, mosquitoes have begun to breed in numbers. Many other points concerning the disease, the parasite and the mosquito, are taken up, the whole making an interesting and valuable contribution to the subject.

MANUAL OF TROPICAL MEDICINE. By Aldo Castellani, M.D., Director of the Clinique for Tropical Diseases, Ceylon, and Albert J. Chalmers, M.D., Registrar and Lecturer on Pathology and Animal Parasitology, Ceylon Medical College. University Series. Cloth. Price, $6 net. Pp. 1242, with 373 illustrations. New York: William Wood & Co., 1910.

This book represents, according to the authors, the knowledge found actually necessary to acquire and use in their work in tropical medicine. A mere glance at the volume of 1,200 pages shows the wide scope taken by tropical medicine at the present day. This department of medical science may be said to be based on the agency of animals in the conveyance of disease, and consequently a very large section of the work, covering nearly 400 pages, is devoted to a description of the biologic causes of disease, including animal parasites and disease-carriers and a short chapter on the vegetable parasites, omitting bacteria, which are sufficiently described in other text-books. The animal parasites and carriers are arranged according to their zoologic order, and a very complete description is given. The following section of about 600 pages treats of the diseases of the tropics, including those which are in any way characteristic, chiefly the infections. The authors have, however, not neglected other affections which present any unusual features in tropical countries. Thus we find certain monsters described because these births occur in tropical countries more frequently, according to the authors' experience, than in cooler climates.

Treatment has been described in detail, which adds value to the book, as it may be the only authority which the worker in a tropical climate has at hand. Specific directions for the administration of medicines are given in such diseases as dysentery, ankylostomiasis, malaria, etc.

The work shows great research and presents a mine of valuable information. Its value is much enhanced by the abundant illustrations, numbering 373, besides 14 colored plates. The usefulness of such a work is by no means limited to those practicing in tropical countries, for a large proportion of the subjects treated find examples in temperate climates, as for instance, malaria, plague, amebic dysentery, pellagra, etc., while those more closely confined to tropical regions may be brought unexpectedly to the notice of the American or European physician by returned travelers or soldiers. To the physician who recognizes the need of acquainting himself with tropical diseases this work will present a welcome aid.

DIE ORTHOPÄDIE DES PRAKTISCHEN ARZTES. Von San.-Rat Dr. Georg Müller, Berlin. Paper. Price, 8 marks. Pp. 258, with 151 illustrations. Vienna: Urban & Schwarzenberg, 1910.

This practical little volume of 258 pages is written, as its title indicates, for the express purpose of diffusing among general practitioners knowledge of such later developments and methods in the realm of special practice as they are not only quite competent to understand, but are well able to follow out in practice, once it is brought to their notice in a plain and logical manner. The author covers a rather complete range of orthopedic treatment with necessarily short discussions of etiology. The directions are practical and clear and their execution may be within the range of the general practitioner if he is fairly ingenious. It is interesting to note, however, a conspicuous absence of our practically indispensable Bradford frame in the treatment of Pott's disease, and complete obliviousness of the name of Grattan when mentioning instruments for osteoclasis; nor is it any less surprising to know that the author removes all dressings ten days after a myotomy for correction of torticollis, depending on massage, gymnastics, and similar therapeutic measures to maintain the correction. In the etiology of spondylitis deformans, while mentioning gonorrhea, rheumatism and uric acid, he omits the pyogenic factor so familiar to us in our later experiences. Possibly we are expecting too much in a book of such limited scope; but there is so much in it that is direct and practical that it should be gratefully welcomed by those whom it is specially designed to serve. The mechanical features of the book are good and the illustrations well chosen and instructive.

NURSING IN DISEASES OF THE EYE, EAR, NOSE AND THROAT. By the Committee on Nurses of the Manhattan Eye, Ear and Throat Hospital, New York. Cloth. Price, $1.50 net. Pp. 281, with 81 illustrations. Philadelphia: W. B. Saunders Co., 1910.

In this book the opening chapters on the germ theory of disease, antiseptics and disinfection of rooms and clothing, sterilization, preparation of operating-room, duties of the nurse at operations, duties in emergencies, feeding and care of infants, etc., do not differ materially from other works on nursing not intended especially for nurses in eye, nose, throat, and ear cases. The anatomic descriptions of the organs and structures included in the scope of the book are sufficiently full and clear for the purposes of the work;

and they are well illustrated; but in the descriptions of diseases and operations or procedures, their application or pertinence to the work of the nurse is not always set out or clearly manifest, although the authors assert that it has been their purpose to keep that relation in mind, as, for instance, in the descriptions of the tuning fork and other diagnostic methods of determining the condition of the hearing apparatus. For the most part, however, such things are avoided, and only such information presented as to give the nurse an intelligent understanding of the duties required of her. It may be questioned by many, however, whether works on nursing giving the general principles would not answer the purpose without requiring a special work for these branches.

SERUMS, VACCINES AND TOXINS IN TREATMENT AND DIAGNOSIS. By W. Cecil Bosanquet, M.D., Assistant Physician to the Charing Cross Hospital and to the Hospital for Consumption and Diseases of the Chest, Brompton, and John W. H. Eyre, M.D., Bacteriologist to Guy's Hospital and in Charge of the Vaccine Department. Second Edition. Cloth. Price, $2 net. Pp. 362, with illustrations. New York: Funk and Wagnalls Co., 1910.

This is a pocket manual of 360 thin-paper pages. The authors devote 60 pages to a consideration of the general principles of immunity and susceptibility and the relation of specific bodies thereto. They then take up about a score of diseases or syndromes for which serums, vaccines and antitoxins have been advocated. With some of these substances the authors have had experience and have written from that point of view. In connection with most of them, however, they review the literature and give more space to American literature than is usual in English or European books. The book would be more valuable if the authors spoke with more of personal conviction on many points.

The subjects discussed are too new for anyone to write a really satisfying book on them. Certainly views have not crystallized enough for the purposes of a manual of a certain type. There is a field for a book that gathers together references for those who want to know of the subjects treated in this volume and have not the time or the training to go deeply into them. Such a manual as this should be revised at short intervals.

HYGIENE AND PUBLIC HEALTH. By B. Arthur Whitelegge, M.D., late County Medical Officer of Health for the West Riding of Yorkshire, and George Newman, M.D., Lecturer on Public Health at St. Bartholomew's Hospital (University of London). Cloth. Price, $1.75 net. Pp. 650, with illustrations. New York: Funk and Wagnalls Co., 1910.

The book covers a wider range of subjects than is customary in American books. The terms used occasionally differ from those in use in this country. A good deal of space is occupied by laws and rules, many of which are not adaptable to this country. Nevertheless, in the absence of standards in America, these rules constitute a most valuable part of the book. This is one of best manuals in any language.

Medicolegal

Validity and Construction of Contract for Medical Treatment for Life; Payment to Be Out of Estate—Licensed Physician of One State Treating Patient Temporarily in Another State

The Supreme Court of Illinois had in Zeigler vs. Illinois Trust and Savings Bank (91 N. E. R. 1041) a case wherein it was sought to enforce a contract providing for payment for medical services for life by a patient's estate. The contract stated that the patient had entered into an agreement for professional services to be rendered by the claimant, a physician, at any time or place, during any spell of indisposition to which the patient might be subjected during the remainder of her natural lifetime; that in the event of sickness such methods were to be employed or adopted as seemed best and most expedient; that all medicine or other paraphernalia necessary to the discharge of duties in cases of indisposition were to be provided by the physician; that when the critical moment came, when it was thought that the patient might pass away, the physician might call another physician or physicians as judgment might dictate; and that it was voluntarily contracted to pay for the services thus rendered $100,000, payable immediately or as soon as possible by the patient's estate. The contract was made in Chicago, in December, 1899, and re-executed or confirmed in July, 1901, the patient being at the former date about 78 or 79 years of age, and living until August 25, 1904, when she died, in California. Her estate was valued at $270,000.

The Appellate Court, First District of Illinois, held that the contract was void, as being against sound public policy. But the Supreme Court of the State reversed its judgment and holds otherwise. That this contract did not in any of its expressed provisions violate the constitution or any statute of the state, the Supreme Court says, did not admit of argument. The making of such a contract is not prohibited either by the express terms or any fair implication of the constitution or of any statute of the state. Neither does the court deem it to be contrary to the judicial decisions of the state. The laws and the public policy of the state permit and require that utmost freedom of contracting between competent parties, and it is only when a contract expressly contravenes the law or the known public policy of the state that courts will hold it void.

It was urged that this contract was void chiefly for the reason that it furnished an incentive to the physician to shorten the life of the patient by neglect or improper treatment or by the commission of the crime of murder. Each argument made in support of that contention involved a breach of the contract, and was not founded on the performance of it. It could not be seriously contended but that, in order to comply with the terms of this contract and be entitled to receive the benefits of it, the physician was bound to give the patient the best treatment within his power and skill and to prolong her life as long as possible. Should he fail to do this, either through neglect, by willfully treating her in an improper manner or by directly causing her death, he would be unable to recover on the contract.

There can be no doubt that a contract to commit murder or any other crime, or a contract to give a reward to one for the commission of a crime, is void, as against public policy. But this contract did not contemplate the commission of a crime or the doing of anything which was unlawful or contrary to good public morals. Even if it be conceded that the contract, under its terms, offered some incentive to the physician to commit a crime, that would not necessarily render it void. There are numerous decisions involving contracts entered into whereby one party has agreed that on his death his property, or certain specific portions of it, shall go to and become the property of the other party for considerations named, being usually the caring for and maintaining of the grantor during his or her lifetime by the other party, or whereby one party conveyed his property to the other for the consideration of the care, maintenance and support of the grantor during the remainder of his or her natural life, and these contracts have universally been held to be valid and binding. In every such case, the incentive to hasten the death of the grantor was present to the same extent as in this case.

The contention that this contract was void for the reason that it was a wagering contract was also not well founded. As this court views it, it had none of the elements which would bring it within the designation of a wagering contract.

There was a sufficient consideration moving between the parties to support the contract.

The interposition of the further defense that the fiduciary relation of physician and patient having existed between the parties at the time of the execution of the original and supplemental contracts they were presumptively fraudulent and prima facie void, merely made it necessary for the physician to show, by a preponderance of the evidence, that the patient entered into this contract voluntarily, deliberately and advisedly, knowing its nature and effect, and that her consent was not obtained by reason of the power and influence to which the relationship between them might be supposed to give rise.

About four months before her death, the patient, accompanied by the physician, went to California, where she died. The physician accompanied her and attended her there, under a special arrangement made with her. It was conceded that

he was not licensed to practice medicine in the state of California, and it was insisted that for that reason he was not entitled to recover anything for his services performed in the state of California, whether rendered pursuant to a contract or otherwise. But the physician, when in attendance on the patient, under the terms of his contract, while she was sojourning temporarily in the state of California, was licensed to practice medicine in the state of Illinois, and, so far as the determination of the questions involved here was concerned, it was immaterial whether he had authority to practice medicine in the state of California, or whether the medical attention he gave to this patient while in the state of California was in violation of the laws of that state. He was not engaged in the general practice of medicine in California, but was simply in attendance on his patient, who was a resident of Illinois, while she was temporarily in California.

Then, it was contended that the physician violated the terms of his contract in refusing to accompany the patient to California in 1903, and for that reason was not entitled to recover on the contract. But a fair and reasonable interpretation of the contract would not require him to accompany her to any place she might see fit to go temporarily, for the purpose of treating her professionally, but only bound him to treat her at her permanent place of abode. That the parties so understood the terms of the contract was evidenced by the fact that when he did accompany her to California, in 1904, it was under a special arrangement whereby he was to receive extra compensation for doing so.

From a consideration of the whole record the Supreme Court is of the opinion that the contract was a valid and binding one, and that the physician, having fully performed it on his part, was entitled to an affirmance of the judgment of the circuit court in his favor.

License Need Be Filed in County of Residence Only

The Supreme Court of Washington says, in State vs. Dechmann (107 Pac. R. 858), that, in prosecutions under the statute of that state for practicing medicine without a license, evidence that the defendant has failed to file a license with the county clerk, as required, is prima facia evidence that he is not a legally licensed practitioner. But, under the law, the failure to file the license in a county other than the county in which the defendant resides will not be proof of the violation of the law or the commission of the crime charged, because it is not one of the requirements of the statute that the practitioner shall file the license in counties other than the one in which he resides, even though he may be called to another county for the purpose of practicing his profession temporarily. Hence a conviction cannot be sustained by evidence showing merely that the defendant practiced medicine in a given county, and that no license had been filed in such county, without any proof that he was at the time a resident of the county.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

September 3

1 Circulation as a Factor which Determines the Effects of Microbic Invasion. A. Haig, London.
2 Open Questions in Tuberculosis. T. E. Satterthwaite, New York.
3 Special Dangers Associated with Operations on the Biliary Passages and Their Avoidance. R. T. Tilton, New York.
4 Use of Day Camps and Night Camps in the Home Treatment of Tuberculosis. N. G. Seymour, New York.
5 *Simplified Method for the Transfusion of Blood. A. M. Fauntleroy, U. S. Navy.
6 Juvenile Form of General Paresis, with Report of a Case. J. V. May, Binghamton, N. Y.
7 Anemia: Its Pathogeny and Hypodermic Treatment. G. K. Dickinson, Jersey City.
8 Dengue. N. Ardati, Beirut, Syria.
9 Measles and German Measles: Characteristics of the Present Outbreak in Philadelphia. M. Ostheimer, Philadelphia.

5. Simplified Method for the Transfusion of Blood.—This method devised by Fauntleroy consists in a vein-to-vein anastomosis by means of a curved glass tube, ¼ inch inner diameter and 3 inches in a straight line from tip to tip. Each end of the tube is slightly flanged to prevent slipping out of vein after ligature is tied. The veins at the elbow are the ones selected for use in both donor and recipient and, depending on the position occupied by the individuals, a full curved or an S-shaped tube is used, the former being known as the "hand-to-shoulder" tube and the latter as the "shoulder-to-shoulder" tube. In other words, when the transfusion is done with the donor and the recipient lying in the same direction, with their shoulders touching, or nearly so, the S-shaped or "shoulder-to-shoulder" tube is used, as the direction of the venous current in this position is the same in each individual. If for any reason the reverse position is selected, such as where the head of the donor is near the lower extremity of the recipient and where the hands of each are near the other's shoulder, the U-shaped or "hand-to-shoulder" tube is used as, in order to effect an anastomosis, the venous current from the donor has to be switched around into the venous current of the recipient which is running in the opposite direction. In making this tube, which is curved to represent the arc of a circle 3 inches in diameter, one arm extends below the semi-circle ¾ inch, and it is this end of the tube which is inserted into the recipient's vein.

New York Medical Journal

September 3

10 *Treatment of Syphilis with Ehrlich's "606"—Dioxydiamidoarsenobenzol. W. Wechselmann, Berlin, Germany.
11 Psychopathic Wards at Bellevue; Their Functions and Aims. M. S. Gregory, New York.
12 Evolution of Hygiene and Sanitation. J. J. Walsh, New York.
13 Twilight Talks by the Doctor. G. F. Butler, Chicago.
14 Treatment of Epilepsy with Hypodermic Injections of Rattlesnake Venom. R. H. Spangler, Philadelphia.
15 Ichthyol. R. H. M. Dawbarn, New York.
16 Causes of Failures in Adenoidectomies. J. V. White, Detroit.
17 Practical Suggestions for Facilitation of an Earlier Diagnosis in Tuberculosis. F. M. Pottenger, Monrovia, Cal.
18 Diagnosis of Tuberculosis in Doubtful Cases. G. Wilson, Baltimore.
19 Alcoholic Amnesia with Clinical Report of a Case. N. S. Yawger, Philadelphia.

10. Treatment of Syphilis with Dioxydiamidoarsenobenzol.—So far, Wechselmann has treated over 600 cases of syphilis with this remedy. He says that the erosive chancres become clean after from 12 to 24 hours and heal rapidly; in pronounced sclerosis the cleaning process is of the same rapidity, but absorption takes longer. In 4 cases there appeared after the healing of the primary lesion an exanthem which healed spontaneously in 2 cases in which it appeared on the first and seventh day after the injection; the 2 other patients received a second injection. Mucous patches of the mouth heal in from 24 to 48 hours, even if the patient is an inveterate smoker. The roseola disappears in a few days, as do also the malign ulcerous syphilides, the rupia, the watery papules, the small papulous syphilides, which are otherwise so pertinaceous, and the gummata. Slower is the disappearance of the large papulous syphilides, and for these a second injection becomes sometimes necessary. Favorable are the effects on syphilis of the bones; especially the night pains of the bones disappear as by magic. In view of experience with other arsenical preparations Wechselmann sees that every patient has his eyes examined by a specialist before giving the injection. In cases in which there are changes in the optic nerve—a circumstance which frequently occurs—he has not given an injection. Visceral lues also shows quick recovery, especially syphilis of the testicles and of the brain (epileptoid attacks). Icterus which has existed for a considerable time disappears in 10 days. Syphilitic growths of the larynx which had produced such severe dyspnea and stridor that the case was received as one for tracheotomy disappeared quickly and remained only as solid infiltrations, which were treated 4 weeks later with a second injection; and edema of the larynx, of which he was very much afraid at first, did not occur. Two patients with tumors from cerebral lues stood the injections well, although the symptoms were very severe. The same was the case with 2 patients

who had only lately suffered a luetic apoplexy and a patient with a luetic apoplexy a few weeks old; these 3 patients plainly showed improvement. As to the parasyphilitic diseases, Wechselmann has not observed clear results in cases of progressive paralysis, although he is of the opinion of Alt, that a trial should be made in early cases. At all events, a favorable influence will be produced on the symptoms of lassitude, depression, and abnormal irritability which occur early and quite threateningly. In tabes also a quick improvement has been plainly noticeable. Altogether, the tabetics are very well satisfied. Some symptoms seem to improve in some cases; for example, the girdle sensation; the dull headache which had existed for years; very severe intercostal neuralgias; in one case weakness of the muscles of deglutition, which had existed for a number of years and which produced difficulty in swallowing dry nourishment. Diminished potentia cœundi was in one case so improved that daily intercourse was accomplished. A debility of the sphincter vesicæ which had existed for 8 years, and on account of which diurnal incontinence occurred, while on a sudden impulse immediate evacuation of the bladder took place, disappeared a few days after the injection. In 2 cases an improvement of the rigor pupillæ was shown, also an improvement of the disturbances of sensibility. Furthermore, some patients state that the gait is improved. In advanced cases, Wechselmann says that one cannot hope for success, but we must not forget that there exist in paralysis and especially in tabes, besides the process which cannot be repaired, such as scleroses of certain systems, syphilitic lesions, especially of single vessels, gummata, meningitic growths, particularly in the atypical forms of tabes, pseudotabes, in which an improvement is possible. It is evident that such an improvement is of the greatest import for the patient even if the improvement occurs in small, circumscribed locations in an organ, as, for example, the spinal column, where so many important nerve courses are crowded together in the smallest space. Several observers, such as Truffi, Pazini, and especially Wechselmann's assistant, Dr. Siesskind, have proved that the spirochetes disappear from papules and primary lesions, in some cases after 24 hours, while in other cases they still exist after days, even if they are swollen and very little movable. Iversen has lately made similar observations in preparations of glands.

The Wassermann reaction usually disappears, as has been stated by Alt, and Lange has found that a time from 8 to 40 days is necessary to produce this effect, according to the primary severity of the reaction.

Wechselmann has not observed bad after effects of importance, but it has been found that otherwise light infections, such as those with coryza or angina, even if they appear on the ninth day, are accompanied with very high fever, with a temperature from 104 to 105.8 F. A patient with a weak heart should therefore be carefully guarded; besides, in such cases the injection seems not to be without danger. Otherwise, the influence of the remedy appears generally to be of an exciting and invigorating nature. It can therefore be given with benefit to very miserable patients, as, for example, to the tuberculous, in contradistinction to mercury. Nor has he observed widespread and severe recurrences, such as occur after mercurial treatment. Isolated cases have remained refractory and made a second injection necessary, which was then successful as in cases of recurrence. Although, naturally, it cannot be positively stated whether it will be possible to cure syphilis permanently, Wechselmann hopes that we shall be able to do this in certain cases.

Boston Medical and Surgical Journal

September 1

20 *Results of 168 Operations for Hernia. C. L. Scudder, Boston.
21 Educational Methods in the Antituberculosis Campaign. J. B. Hawes, Boston.
22 Personal Relation of the Physician to his Patients. O. H. Howe, Cobasset, Mass.
23 Necessity of the General Practice of Medicine as a Preliminary Training for Those Engaged in Special Work. C. M. Cobb, Boston.

20. **Results Following Operation for Hernia.**—Scudder reports 244 operations done by him for hernia of all kinds. There have been no deaths following operation in uncomplicated cases. The only deaths were in the strangulated group. There were 25 patients with strangulated hernia; 10 of these died; 3 hernias were inguinal, 1 hernia was ventral, 1 was femoral, and 5 of the 10 fatal cases were umbilical. These 10 deaths make a mortality of 40 per cent in the strangulated group.

Scudder succeeded in obtaining the present condition of 158 of these cases. Of the 158 operations, 143 wounds are solid and without recurrence. That is, 90.6 per cent. of the patients operated on in whom the returns were known were cured. There were 165 patients with inguinal hernia; 53 did not report; in 3 strangulated cases the patients died; 10 of the 109 in whom the end-result is known recurred. That is, 90.9 per cent. of the patients in the inguinal group were known to be cured.

There were 27 cases of ventral hernia; 11 patients did not report; in 1 the hernia recurred; 1 died of strangulation; 14 of the patients in whom the end-result was known were all right. That is, in 93.33 per cent. of the cases reported the patients were cured.

There were 13 umbilical cases. There was no report from 3 cases. Of the remainder, 5 patients died of strangulation; 5 had no recurrence.

There were 5 epigastric hernias. All of these patients reported, and each is well.

There were 2 congenital cases, in each of which the patient died.

It will thus be seen after a careful analysis of the returns from these cases of hernia that there are comparatively few recurrences following the procedures employed. This investigation into the condition of these hernia cases was undertaken primarily to determine whether any material change might be necessary in the technic of the operation to secure better results. In analyzing the 10 cases in which recurrence is known to have occurred in the inguinal hernia group, conditions were present which precluded, perhaps, the possibility of cure. In certain (2) of these cases a chronic cough which had persisted for years contributed to the recurrence. One case was a strangulated case, and it is very likely that the operation was done with such haste on account of the condition of the patient that the technic was not so satisfactory as it might have been. In the other 7 cases there is no explanation apparent for the recurrence. Scudder thinks it fair to say that the Bassini operation for inguinal hernia is most satisfactory and that if carefully performed gives at least a cure in 90 per cent. of the cases and possibly in 95 per cent. (Coley). There was no mortality attending these operations for hernia. In certain of the strangulated cases the patients recovered; in 10 strangulated cases the patients died.

Lancet-Clinic, Cincinnati

August 27

24 Surgery of Aneurism of Aortic Arch and Its Branches. B. M. Ricketts, Cincinnati.
25 Lacerations of Cervix and Perineum. D. D. Deneen, Cincinnati.

September 3

26 The Owen Bill for the Establishment of a Federal Department of Health and Its Opponents. S. A. Knopf, New York.
27 Myasthenia Gravis. I. O. Allen, Richmond, Ind.
28 Consecutive Examinations of Life-Insurance Risks. E. O. Kinne.

American Journal of the Medical Sciences, Philadelphia

September

29 *Therapeutic Action of Digitalis. V. E. Henderson, Toronto, Canada.
30 *Digestive or Alimentary Hypersecretion of Gastric Juice. J. Friedenwald, Baltimore, Md.
31 Chronic Pancreatitis. J. Sailer, Philadelphia.
32 *Congenital Heart-Block Occurring in a Father and Two Children, One an Infant. Z. M. K. Fulton, C. F. Judson and G. W. Norris, Philadelphia.
33 *Duration of Pregnancy, with a New Rule for its Estimation. E. McDonald, New York.
34 Further Studies of Sarcoma of Bone. L. Ruerger, New York.
35 Cases Illustrating the Origin of Hysterical and Pseudohysterical Symptoms. T. A. Williams, Washington, D. C.
36 *Psychasthenic Attacks Resembling Epilepsy. T. J. Orbison, Los Angeles.
37 Fatality Following the Removal of Tonsils and an Adenoid Growth. F. R. Packard, Philadelphia.
38 Metabolism after Parathyroidectomy. J. V. Cooke, New York.
39 Electrocardiogram in Clinical Medicine. W. B. James and H. B. Williams, New York.
40 *Effects of Injection of Killed Streptococci. G. H. Weaver, Chicago.

29. **Therapeutic Action of Digitalis.**—Henderson is convinced that Fraenkel's method of intravenous administration of strophanthin puts into the hands of the physician a valuable means of overcoming cardiac weakness promptly. The mode of application is so certain, its effect so striking, that it might almost awaken suspicion that such drastic action might damage the heart. It might be felt that, in order to maintain the circulation when the cardiac rate is so suddenly decreased, a very great increase of work must be done by the heart. This is certainly true for each individual beat, but if one takes the total amount of work done during a unit of time, this is by no means necessarily the case. We must remember, however, that even if the heart is doing a greater amount of work in each interval of time, we have increased its ability to do work owing to the increase in the contractibility of the muscle cells, and have also decreased the danger of cardiac failure by increasing the tone of the heart muscle. We have also probably improved the nutrient conditions of the muscle, as digitalis increases the flow through the coronary vessels.

30. **Hypersecretion of Gastric Juice.**—Friedenwald's observations extend over a series of 14 cases. Of these, there are 12 males and 2 females, ages varying between 18 and 64 years. The symptoms are largely those of gastric neurasthenia, consisting of fullness, pressure, distention, eructations and pains in the region of the stomach, together with occasional attacks of nausea and vomiting, rarely of heartburn, and usually with extreme constipation. In all cases general nervous symptoms are manifested, as lassitude, headache, insomnia, irritability and depression. A marked feature of the cases is the variability of symptoms; periods of discomfort alternating with unaccountable periods of well-being, the periods of discomfort apparently often being induced by nervous influences, such as shock or anxiety. A symptom present in all instances is the emaciation; a loss of weight of from 15 to 32 pounds is observed in his cases. This is especially striking, as the appetite and amount of nourishment consumed were not abnormally diminished in any instance. Localized areas tender to pressure were observed in only 2 cases, but were inconstant. A marked succussion sound was detected in all cases long after meals, and even after small meals. Three of the cases were complicated with an enteroptosis; in none was the stomach dilated. The following examinations were made in all instances: (1) Extraction and examination of the gastric contents one hour after taking an Ewald-Boas test breakfast; (2) an examination of the gastric contents made one hour after taking a dry test breakfast; and (3) an attempt was made to extract and examine the contents from the fasting stomach. At least 3 examinations were made in all instances. In these 14 patients, 8 presented hyperacidity, 5 normal acidity ranged between 94 and 70; free hydrochloric acid between 74 and 44; in the normal cases, the total acidity varied between 64 and 42; free hydrochloric acid between 42 and 32; in the subacidity case the total acidity was 28; free hydrochloric acid. In the hyperacidity cases there was a marked interference with the amylolysis with the formation of amidulin. In the cases with a normal percentage of acid erythrodextrin was formed; while in the subacidity case, achroodextrin was obtained. With the dry test meal 2 of the patients presented hyperacidity, 4 normal acidity, and one subacidity. In the hyperacidity cases the total acidity varied between 85 and 80, the free hydrochloric acid between 68 and 72. In the normal cases the total acidity ranged between 40 and 58, the free hydrochloric acid between 34 and 46; and in the subacidity case the total acidity was 20; free hydrochloric acid, 5. In the hyperacidity cases there was a formation of amidulin; in the cases with a normal percentage of acid, erythrodextrin; in the subacidity case, achroodextrin. The extraction of contents from the fasting stomach was attempted in all instances. In not one of the cases could more than from 10 to 15 c.c. of contents be obtained. The treatment is largely the treatment of nervous dyspepsia. As most patients have lost much flesh and strength, the best results are obtained by means of the rest cure. In 5 of Friedenwald's cases in which this form of treatment was undertaken, excellent results were obtained. Ordinarily the diet should consist of 3 meals a day, as all food ingested has a tendency to increase the gastric secretion. The nourishment should contain an excess of proteins and fats and a small proportion of carbohydrates. Of the proteins, milk, eggs and fish are to be preferred, as they do not tend to increase the gastric secretion as much as meat. Fats decrease the acid of the gastric secretion and are therefore highly recommended; they should be given as butter, cheese, cream and olive oil. The carbohydrates should only be allowed in the most digestible forms, as vegetables in puree form, dextrinized flour, and stale bread and toast. The quantity of fluids ingested need not be decreased in this affection. Large quantities of milk and alkaline waters may be taken with benefit. Such food as bouillon, meat extracts, coffee, tea and alcohol, as well as all acid and spiced foods, should be avoided. The alkalies, with or without belladonna or its preparations, are often serviceable in the treatment of this disorder. Such measures as hydropathic procedures, massage, etc., which have a tendency to build up and strengthen the nervous system, are of great service in the treatment of this condition.

32. **Congenital Heart-Block.**—The hypothesis which the authors formulate to explain their cases is that they are dealing with a congenital physiologic and perhaps anatomic abnormality in the auriculoventricular bundle or its blood supply, by virtue of which conductivity is restored more slowly than normally.

33. **Duration of Pregnancy.**—The rule employed by McDonald is as follows: The duration of pregnancy in lunar months is equal to the height of the uterus in centimeters divided by 3.5. It depends on the more or less regular growth of the uterus of 3.5 cm. each month of 4 weeks, and is very exact after the sixth month. The measurement is taken with the patient lying flat, and one end of the tape is placed at the upper border of the symphysis, while the other is held by the thumb into the palm of the hand. The fingers of the upper hand are held at right angles to the fundus of the uterus, and the tape follows the contour of the uterus save at the last dip. Multiparæ with lax abdominal walls and thin uteri should be supported at the side, so as to bring the occipitococcygeal axis of the pelvis into the long axis of the mother's body. McDonald says that this method gives satisfactory results and is the most exact means of estimation of the duration of pregnancy. It is strictly an estimation of the size of the fetus; for when the uterus arrives at the height of 35 cm., or full term ($\frac{35}{3.5} = 10$ lunar months), the fetus is of a weight of 3,300 gm., or average size, as is shown by the measurement in a former paper. Thus an average-sized baby usually comes at the average period of pregnancy—hence the rule. After the sixth month this rule is extraordinarily exact, he asserts, and is most useful in determining the date of labor and the size of the fetus, when the date of the last menstruation has been forgotten. It has been in use by McDonald since 1904, and he has had good reports of it from many obstetricians. It may be said that 35 cm. is the usual height of the uterus at full term with a fetus of 3,300 gm. For every centimeter of height above this measurement approximately 200 gm. should be added to the weight of the fetus. Thus, a uterus measuring 37 cm. would contain a fetus weighing 3,700 gm. The measurements are more exact below 35 centimeters than above that height. The so-called sinking of the fetus in the last 2 weeks of pregnancy causes but little error in the measurement, as the head, when the patient is recumbent, rides upward on the pelvic bones and the sinking is not a factor. Sinking in his experience is not common in primiparæ, and its supposed presence is often due to the stretching of the abdominal muscles and not to descent of the head into the pelvis. The fundus thus comes lower in the erect position, and no diminution of the fundal height is noted in the recumbent. Sinking does, however, in multiparæ sometimes complicate the measurement, but not often. Hydramnios also causes but small error, as the excess of liquid does not affect the fundus, but the body of the uterus

leaving the height of the fundus to be determined by the occipitococcygeal measurement and the size of the fetus. The rule gives the most exact means at hand of prognosticating the date of labor. Thus, if the fundus measures 26 centimeters from the symphysis, the duration of pregnancy is 26 divided by 3.5, or 7 3/7 lunar months, and the patient has 2 4/7 lunar months to go to term, or 10 weeks and 2 days. This rule, combined with the estimation of pregnancy by reckoning from the last menstruation, gives a fairly exact determination of the probable date of labor.

36. **Psychasthenic Attacks.**—All Orbison's patients were females with an asthenic mental condition that is unquestionable. Ignoring the attacks themselves, every case would be diagnosticated psychasthenia. All the patients feared epilepsy or insanity, and the assurance that these fears were groundless was a great boon. The treatment consisted in mental and physical hygiene, together with rest or exercise, as seemed to be indicated.

40. **Effects of Injections of Killed Streptococci.**—Weaver says that destruction of streptococci within the body is accomplished through phagocytosis, for which opsonin is essential. In estimating the ability of the individual to cope with streptococcic infections, the leukocytes as well as the serum must be taken into account. Killed streptococci when injected into an animal may raise its resistance to living, virulent streptococci. It is desirable that injections of killed streptococci as a prophylactic against scarlet fever be tried under conditions favorable for control. Heating interferes with the antigenic properties of streptococci. These properties are preserved when streptococci are killed by a strong galactose solution. Injections of galactose-killed streptococci early in the course of scarlet fever do not prevent later streptococci complications. Injections of galactose-killed streptococci in cases of acute erysipelas and in the acute stage of streptococcic complications of contagious diseases appear not to influence the course of the disease. In subacute and chronic erysipelas and in streptococcic complications of contagious diseases which have become chronic, injections of galactose-killed streptococci are sometimes followed by favorable results, and at other times no appreciable effect is seen. Great caution must be observed in ascribing improvement in these cases to the injections.

Laryngoscope, St. Louis

August

41 The Nose and Accessory Sinuses. H. L. Swain, New Haven, Conn.
42 Knowledge and Treatment of the Upper Respiratory Tract: The Oropharynx and the Nasopharynx. W. K. Simpson, New York.
43 Knowledge and Treatment of the Larynx, Trachea and Bronchi. S. Yankauer, New York.
44 Pediatrics and Otiatrics. E. Gruening, New York.
45 Brain Abscess Formations. S. M. Smith, Philadelphia.
46 A Safe Intranasal Method of Opening the Frontal Sinus. J. A. Thompson, Cincinnati.
47 The Exanthemata: Their Causal Relation to Diseases of the Ear. J. J. Pattee, Pueblo, Colo.

Journal of Infectious Diseases, Chicago

August

48 *The Mills-Reincke Phenomenon and Hazen's Theorem Concerning the Decrease in Mortality from Diseases other than Typhoid Fever Following the Purification of Public Water Supplies. W. T. Sedgwick, Boston, and J. S. MacNutt, Orange, N. J.
49 *Physiology of Anaphylactic Shock in the Dog. R. M. Pearce and A. B. Eisenbrey, New York.
50 *Influence of Chloral Hydrate on Serum Anaphylaxis. E. J. Banzhaf and L. W. Famulener, New York.
51 *Inhibition, Attenuation and Rejuvenation of *Bacillus Coli*. F. E. Hale and T. W. Melia, Brooklyn, N. Y.
52 *A Hemophilic Bacillus Found in Urinary Infections. D. J. Davis, Chicago.

48. **Mortality Decrease Following Water Purification.**—The authors record in great detail the results of their observations which confirmed the findings of Mills and Reincke that the mortality from all diseases—not only typhoid—decreased appreciably as the result of water purification.

49. **Anaphylactic Shock in the Dog.**—These observations show that anaphylaxis in the dog is characterized subjectively by a sudden and persistent fall in blood pressure followed by objective symptoms referable to cerebral anemia. Exsanguination and transfusion experiments demonstrate that the disturbance is due to a reaction in the fixed cells and not to changes occurring primarily or secondarily in the circulating blood. Experiments in which the peripheral and central vasomotor mechanisms have been separated by various methods (section, decapitation, destruction of the cord, and isolated circulation) show that the chief influence is exerted on the peripheral vasomotor system. Pharmacologic experiments point to an influence on the nerve endings rather than to one on the muscle of the vessels.

50. **Influence of Chloral Hydrate on Serum Anaphylaxis.**—In a preliminary communication Banzhaf and Famulener stated that they believed that with improved technic in the dosage of chloral hydrate it would be possible to protect 90 per cent. of all fully sensitized guinea-pigs. Now, however, they have come to the conclusion that, if the smallest dose of serum which will just kill any animal of a given series of sensitized guinea-pigs regularly, be injected into the remainder of the animals of the same series of sensitized guinea-pigs, when properly under the influence of chloral hydrate, protection will be afforded in practically all cases.

51. **Studies of Bacillus Coli.**—There has been much discussion and uncertainty as to the delicacy and relative value of dextrose broth and lactose bile in testing water of fairly good quality. The present investigation was undertaken by Hale and Melia with a view to throwing light on this subject. They found that the bile salts in lactose bile cause an appreciable degree of inhibition in the development of *B. coli*. This inhibition increases with attenuation. Rejuvenation in suitable media, followed by transplanting to lactose bile, will sometimes prove the presence of *B. coli*, usually attenuated, not shown by the lactose bile in direct tests. In actual practice, covering hundreds of samples of Manhattan and Brooklyn waters, the lactose bile, made with the addition of 1 per cent. peptone, has been shown practically to equal the results obtained by rejuvenation in dextrose broth, made with Liebig's extract, followed by transplanting to lactose bile. The authors hold that if dextrose broth is continued in use, it should be made with fresh beef infusion, since it is then more delicate than when made with Liebig's extract. The formula test is of but little practical value and transplantation to lactose bile should be done as soon as gas appears. Gas formation in lactose bile after transplantation from the plain broth or dextrose broth is not always certain, even when *B. coli* is present, on account of interfering growths in the original medium. Lactose bile gives more reliable presumptive tests for *B. coli* than any other known medium, including æsculin broth. Other species of bacteria cause much less interference with gas formation of *B. coli* in lactose bile than in any other media. To rejuvenate and transplant seems too laborious and uncertain in routine work. The information gained assists more especially in interpreting the results obtained with lactose bile. Lactose bile makes a distinction between recent and distant contamination, hence better evidence of the actual relative sanitary quality of a water. The use of lactose bile as a step in the separation of *B. typhosus* from water adds yet weightier reasons for its direct employment in the examination of water.

52. **Hemophilic Bacillus in Urinary Infections.**—In a series of cases of urinary infections, blood media was used by Davis in the routine examination of the urine and other material from the urinary tract with the result that in 3 cases an organism was found which apparently can be cultivated only by this method. The organism is a small non-motile, Gram-negative bacillus whose size varies considerably, but is usually about that of the influenza bacillus. It stains readily with ordinary dyes and is non-acid and non-alcohol fast. With methylen-blue it often stains unevenly, sometimes more deeply at the ends, and again fairly distinct granules may be made out so that it looks not unlike very minute diphtheria bacilli. There is no tendency to form threads or chains, and a characteristic grouping has been made out, though it is common to see the organisms both from urine and from cultures arranged in small irregular clumps consisting of several bacilli. In the urinary sediment they may be seen

clustered about the pus cells, probably having been thus carried in the process of sedimentation. They occur both within and without the leukocytes and at times seem to adhere to epithelial cells. The bacillus does not form spores and does not possess a capsule. Two of the patients had pyuria and the third gave a history of urinary infection some time previously. Two had joint trouble, but there was no evidence to indicate a causal relationship between the bacillus and the joint affection. Davis believes that this bacillus may not be rare and that it has been overlooked because of its hemophilic property.

Medical Fortnightly, St. Louis

August 10

53 Cretinism, Juvenile and Adult Myxedema; Exophthalmic and Simple Goiter. H. E. Jones, Roanoke, Va.
54 A Crux Medicorum. T. G. Stephens, Sidney, Iowa.

Journal of the Missouri State Medical Association, St. Louis

August

55 Selections from a Lantern Demonstration of Normal and Pathologic Specimens of the Ear. L. K. Guggenheim.
56 *What is the Best Treatment for Acute Spreading Peritonitis? H. S. Crossen.
57 *Recognition of Lung Tuberculosis. O. H. Brown.
58 Clinical Deductions in the Study of Tuberculosis. W. Porter.
59 Malaria in Infancy and Childhood. J. H. Timberman.
60 *What Should the County Society Do with the Advertising Doctor? B. B. Parrish, Kirksville.
61 Cutaneous Tuberculin Reaction in Children. F. C. Neff, Kansas City.
62 Manner of Postgraduate Teaching of Neurology in America. R. E. Castelaw, Kansas City.

56. Acute Spreading Peritonitis.—The combination treatment for acute spreading peritonitis, which to Crossen seems best, is as follows: 1. Withhold all food and cathartics by mouth and empty the stomach with a stomach tube. 2. Drain the infected areas with the least possible intraperitoneal disturbance. 3. The Fowler posture. 4. Proctoclysis. 5. Nourishment by rectum.

57. Recognition of Lung Tuberculosis.—Brown says that of all cases of lung tuberculosis which show evidence of active processes, between 95 and 100 per cent. of them can be recognized by the simple methods of physical examination which may be found in any text-book on diagnosis. When possible the conclusions should be supported by laboratory tests.

60. The Advertising Doctor.—Parrish is in favor of educating the public thoroughly in regard to the code of ethics, as it will have a wholesome effect on the profession and at the same time place the profession in a better light before the public.

Journal of Ophthalmology and Oto-Laryngology, Chicago

August

63 Staphylococcus and Streptococcus Vaccines in Eye Diseases. W. A. Mann, Chicago.
64 Surgical Treatment of Trachoma. C. S. Ayres, Cincinnati.
65 The Septal Spur and its Removal. F. G. Stubbs, Chicago.

Northwest Medicine, Seattle

August

66 Rational Procedures in the Practice of Medicine. H. A. Hare, Philadelphia.
67 Duties of the Physician of To-day. W. D. Kirkpatrick, Bellingham, Wash.
68 Tuberculosis Immunity. R. C. Matson, Portland, Ore.
69 Congenital Hydronephrosis, with Report of Case. C. Smith, Spokane.
70 General Considerations in Diagnosis of Infantile Diseases. E. W. Janes, Tacoma, Wash.

Journal of Abnormal Psychology, Boston

August-September

71 Psycho-Analysis of a Case of Sensory Automatism. I. H. Coriat, Boston.
72 Hysteria. H. W. Miller, Washington.
73 *Apropos* of Dr. Miller's Case of Lyssophobia. T. A. Williams, Washington, D. C.

The Military Surgeon, Washington

September

74 Ready Means of Increasing the Marching Radius of the Soldier. W. W. Reno, U. S. Army.
75 *Venereal Diseases in the United States Army—Their Prevention and Treatment. L. M. Maus, U. S. Army.
76 Prevalence and Prophylaxis of Venereal Diseases at One Military Post. C. F. Morse, U. S. Army.
77 Rules for the Personal Hygiene of the Soldier. J. H. Weaver, National Guard Pennsylvania.
78 Feeding of Infants in the Tropics. H. Page, U. S. Army.
79 The Establishment of a Proficient Volunteer Medical Corps for the Army and Navy. A Problem of the Future. H. Hays, New York City.
80 Syphilis and Its Treatment. M. H. Simons, U. S. Navy.
81 Case of Balantidium Dysentery. L. C. Duncan, U. S. Army.
82 Diseases of the Heart Among Applicants for Enlistment. S. M. DeLoffre, U. S. Army.
83 Case of Intestinal Bilharziosis. T. W. Jackson, U. S. Army.
84 Case of Yaws. J. F. Siler, U. S. Army.

75. Prevention of Venereal Diseases.—Observation and experimentation have convinced Maus, he declares, that calomel alone (25 per cent), in connection with animal fats, benzoated lard (40 per cent.), and refined suet (30 per cent.), is all that is required to prevent infection from either of the 3 venereal diseases (syphilis, gonorrhea or chancroids), if properly used within reasonable time following sexual contact. The calomel is introduced into the urethra and massage employed for a few moments.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

August

85 Further Uses of Solution of Calcium Creosote in Medicine. L. Kolipinski, Washington, D. C.
86 Skin Inunction as a Therapeutic Measure. I. F. Flick, Philadelphia.
87 Treatment of Hypertension Resulting from Alcoholic and Other Excesses by D'Arsonvalization. W. B. Snow, New York City.
88 *Red Indican Urine; Its Clinical Significance; the Metchnikoff Theory. A. Bassler, New York City.

88. Red Indican Urine.—From March 1, 1909, to March 1, 1910, Bassler examined 1,371 specimens of urine from patients coming under observation for the first time. Of these, an increased conjugate sulphate partition, represented in the 3 chromogens, was noted 427 times; 171 showed urorosein alone; 67, indican alone; 166 showed urorosein and indican combined; 20, blue and red indican combined, and 3 urohematin alone. The urinary test which he uses is a modification of the Jaffé test, consisting of the addition of an equal part of concentrated hydrochloric acid in the urine (about 5 c.c. of each), then about 2 c.c. of peroxid of hydrogen and about 3 c.c. of chloroform, shaking well, and then centrifuging the whole. This gives the blue and red indican in the chloroform and the urorosein in the supernatant fluid (the red indican and urorosein both being rose-colored). Bassler thinks urohematin is most probably an indoxyl derivative having a clinical significance similar to indican. It is more rarely observed alone than indican, although a purplish color which represents both the blue and the red is a most frequent finding. Red indican urines are often found in extensive disease of the small intestine allowing of resorption, in gastric cancer, and in acute and chronic peritonitis. Like blue indican, it is met with also in ileus and intestinal obstruction, though not so commonly in the malignant and organic strictured states, and in chronic diarrhea. It is present in normal urine in small amounts, and may be demonstrated by shaking the urine with chloroform (about 4 to 1 parts by volume) and decanting it after agitation during several days, when the addition of a drop of concentrated hydrochloric acid to the chloroform will cause the appearance of a rose color—the deeper the color, the greater is the amount of chromogen present. It is probably of albuminoid origin. In the blue indican cases the patients usually present themselves clinically showing depression, relaxation, lowered vitality and persistent anemia. The red indican cases, on the other hand, are more usually of the irritative, anxious, highly neurotic and hysterical types, with good general body and blood conditions, and are not so commonly constipated. Bassler's experience has been that the bacterial and cultural examinations of the feces in the blue and red indican cases show no distinctive differences. Some yield high Gram positive findings, others low. It is almost a daily observation with him that when the proper diet for an indican case has been maintained for a while (essentially proteid free), and the output of indican has been lowered, the individual will develop into a urorosein case for which the diet would be essentially proteid in make-up. Among other things that must be done in the handling of these cases is to put all types on a diet of proper caloric value to meet the weight and work of the individual, and to grade the proteins, protein sparers and vegetables to meet the urinary indications. Only in this way can substantial tissue-construction in treatment take place.

Ophthalmic Record, Chicago

August

89 The Operation of Pannus Dissection. T. A. Dickson, Mobile, Ala.
90 A Theory of the Etiology, Prevention, Treatment and Cure of Trachoma. F. B. Eaton, Portland, Ore.
91 Vossius' Lens-Ring. H. Gifford, Omaha.
92 Demonstration of the Hemianopic Prism-Phenomena of Wilbrand. A. Saenger, Hamburg, Germany.
93 Large Piece of Wood Embedded Deeply in Orbit of Child 25 Months Removed with Preservation of Vision. C. A. Veasey, Spokane, Wash.

Ohio State Medical Journal, Columbus

August 15

94 Treatment of Neuralgias by Deep Injections of Alcohol. C. R. Ball, St. Paul, Minn.
95 "Pole Ligation" for Exophthalmic Goiter. J. H. Jackson, Toledo.
96 Nystagmus as Related to Diseases of the Inner Ear and Cerebellum. W. B. Chamberlin, Cleveland.
97 Mastoid Operative Methods and Prognosis as Influenced by Labyrinthine Disease. J. E. Brown, Columbus.
98 Cerebellar Abscess. W. Mitthoefer, Cincinnati.

Texas State Journal of Medicine, Fort Worth

August

99 A Year's Progress in Medicine and Pediatrics. W. Shropshire, Yoakum, Tex.
100 Submucous Resection of the Nasal Septum. H. B. Decherd, Dallas, Tex.
101 Need of Sanitary Education in Both Town and Country. W. H. Blythe, Mt. Pleasant, Tex.
102 Classified Delusions of the Insane. R. B. Sellers, Comanche, Tex.
103 Infant Mortality. T. Y. Hull, San Antonio, Tex.
104 Puerperal Eclampsia. B. G. Prestridge, Alvarado, Tex.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

August 20

1 Strain. L. Brunton.
2 *Peptic Ulcer and Dilatation of the Stomach. T. R. Bradshaw.
3 *Case of Migraine Associated with Chlorin Retention. H. Higgins.
4 Rough Bacteriologic Examination of the Condition of Swimming-Bath Water. G. H. Pearce.
5 Case of Pernicious Anemia Terminating in Acute Diabetes. J. Parkinson.
6 *The Abuse of Purgatives. H. French.
7 Case of Rheumatic Arthritis Followed by Streptococcus Invasion. G. R. Strong.

2. **Peptic Ulcer and Dilatation of the Stomach.**—An interesting case is cited by Bradshaw, that of a widow, aged 64, who first consulted him in October, 1900. Many years before she had been attended by a well-known physician for hematemesis, and subsequently for mitral regurgitation. When Bradshaw saw her she had gastric pain, there was vomiting, and the stomach was distended. At times the distention was great and was relieved by copious vomitings of watery fluid containing a little blood, sarcinæ, and a good deal of free hydrochloric acid. The patient was clearly suffering from temporary complete occlusion of the pylorus. A surgeon who saw her was unwilling to operate on account of her age and the presence of valvular disease. The patient also declined operation, and after one trial of lavage resolutely refused to allow Bradshaw to repeat the process. For some days she was fed entirely by the rectum; even then the stomach continued to fill up with its own secretions. On one occasion spontaneous evacuation through the pylorus and the bowels took place. After some days the power of retaining a little food returned, but any slight increase in the amount was liable to be followed by complete occlusion. A small piece of solid food no bigger than a grain of corn seemed capable of plugging the pylorus; any distention of the stomach caused it to drop and the pyloric end to become kinked.

For 8 years she lived on a pint of fluid and 2 or 3 crumbly biscuits *per diem*, and in spite of this care had an attack of complete occlusion every 8 or 12 months, each one of which it was thought would prove to be the last. She wore an abdominal belt, which certainly seemed of some service in supporting the stomach. She retained her mental and bodily vigor under this regimen. Two years ago, however, she insisted on consuming meat and vegetables in considerable quantity. An attack of hemorrhage took place. However, she persisted with the new and enlarged dietary, and instead of getting worse she improved, and after being confined for eight years to a daily allowance of a pint of liquid she found that she was now able to take ordinary food in normal amounts. She began to put on flesh, and for the last two years she has enjoyed good health, takes her meals as do others, and has no return of vomiting or other serious symptoms of gastric trouble. Apparently the disturbance from the taking of solid food two years ago led to the ulceration or stretching of the adhesions that restrained the pylorus.

3. **Migraine Associated with Chlorin Retention.**—This paper deals with records of observations made in a case of long-standing neurasthenia and migraine in a well-preserved man, aged 43. The chief subjective sensations complained of were as follows: 1. Sensations of exaggerated fatigue, which the French express by the word "*courbature*" and the Italians by "*taglia gambe*" (literally, the legs cut from under one). 2. Mental depression of the overwhelming unreasoning kind, so characteristic of neurasthenia. 3. Headaches, lasting sometimes as long as 3 days, accompanied by the usual migraine symptoms; they usually caused insomnia, as he was obliged to sit up in bed to ease the pain; so soon, however, as he slipped down he was awakened with a fresh exacerbation. Depression and fatigue sensations were always associated, analytically, with "Joulie" hypoacidity and more or less decided increase in the "Jacquemet" reaction; on several occasions the tube used in the latter test could be held upside down for as long as 10 seconds before the layer of colloid would allow it to fall. These symptoms were invariably and quickly removed by means of not more than 70 drops of phosphoric acid. On each occasion there was a decided increase in the indican. When he complained of depression alone hypoacidity was not always associated with the symptoms, the urine being occasionally even hyperacid.

In reviewing the facts of this case in order to decide on the details of treatment, Higgins says that it is quite clear that chlorin retention dominates the clinical picture. The therapeutic measures recommended were the following: A Glénard's belt with gentle abdominal exercises and minute care in emptying the colon, if necessary, by enemata; 100 and 150 gm. respectively of grilled lean meat on alternate days, 3 eggs daily, 1 or 2 tablespoonfuls of sour (lactic acid) milk, the remainder of a ration of 80 gm. of proteid to be made up by fish or casein freshly prepared by citric acid. It was particularly insisted on that no proteid should be taken unless it was quite fresh. The vegetable salts of 500 gm. of fresh vegetables were ordered to be taken, with care. They were to be omitted whenever the depression following their ingestion lasted more than an hour or when the headaches recurred. As during the above observations the blood pressure had already risen to 95 mm., only 0.5 gm. of calcium carbonate was given; this was to be increased or diminished as the blood-pressure rose or fell. Two grams of hydrate of magnesium were given, as well as a small ration of iodin in organic combination.

6. **Abuse of Purgatives.**—French shows that it is very important to realize that although it is relatively easy to produce an action of the intestine by means of a purge, this is a very different thing from curing constipation. Purgatives are administered far too indiscriminately, he declares, and a great deal of constipation is increased rather than diminished by them, and it may even actually be produced by them. Just as it is a natural instinct of the brain and body to go to sleep for a regular period in each 24 hours, so it is the natural instinct of the large intestine to empty itself periodically once every day. This regular habit should always be encouraged, and if the bowels opened at the same time each day constipation would be almost non-existent. The difficulty is that, from carelessness and other causes, the action of the bowels may be postponed or responded to irregularly, with the result that, as time goes on, the bowel, brought up irregularly, shows its desire to act irregularly; some days there will be an action, other days not.

Thereupon, those who do not think sufficiently, or do not know what they are doing, at once either take or prescribe some purgative dose, such as castor oil, salt or even calomel, with the result that the contents of the bowel are driven

through, it is true, and there is an apparent relief of the constipation; but the mere fact that there has been an over-action of the bowel to-day makes it all the more likely that there will be no action at all to-morrow and the next day, so that by that time another dose may seem to be required; and so the condition goes on from bad to worse because, instead of encouraging Nature's natural tendency to act once a day, the bowel is forced periodically and left inactive in the intervals. Purgatives should be used with the greatest caution, and a strong dose should never be given when a mild dose would suffice. If the case is merely one of simple constipation it is better to spend some weeks or months trying to coax back the regular habit by getting the patient to try hard at a regular time each day, at the same time giving him more fluids to drink and some foods with an insoluble residue to eat, than to give laxatives at all. Examples of these kinds of foodstuffs are the fiber of green vegetables and fruits, and proportions of husks in porridge and brown bread.

British Medical Journal, London

August 26

8 Some Pharmacologic Effects of Strong Sulphur Water of Harrogate. D. Brown.
9 *After-History of Forty Cases of Epithelioma of the Lip. A. R. Short.
10 Effect of a Denture After Excision of the Upper Jaw and Septum Nasi. R. Parker.
11 *An Immense Renal Calculus. G. W. Ord.
12 *Simple Method of Removing Sebaceous Cysts. H. Freeth.

9. **After-History of Epithelioma of Lip.**—This report has been drawn up to afford some ground on which opinion may be based in endeavoring to decide whether the more extensive operation is really desirable. The cases are classified according to the method of operation adopted, the operations for recurrence being classed separately.

1. One operation only; removal of growth on lip by a V-incision; glands not removed; 23 patients, of whom 14 are now well, 4 are known to have died of recurrence, and 2 more have probably done so, and 3 are lost sight of.
2. One operation only; removal of growth on lip and of a palpable gland or glands; 6 patients, of whom 1 is probably cured, 3 died of recurrence, and 2 cannot be traced.
3. Removal of growth on lip and complete clearance of all the submaxillary glands on that side at the same time or soon after, although not palpably enlarged; 3 patients; 2 well, 1 recurred. All cases are rather recent.
4. Recurring cases, patients operated on more than once; 7 patients; 2 are well, 1 has probably had recurrence, 1 died of pneumonia without recurrence, and 3 died of recurrence.
5. Recurring cases in which first operation was performed elsewhere, 6 patients; 2, probably 3, are well, 3 died of recurrence.

It will be seen that of those cases in which no glands were removed at the first appearance 16 ended favorably, and 7 terminated fatally as the result of recurrence. When, however, there were already enlarged glands, though perhaps only one, 1 case resulted favorably, and 5 terminated fatally. There is little doubt, in the author's opinion, that an extensive removal of all the glands, besides those enlarged, is indicated in this latter class.

11. **An Immense Renal Calculus.**—Ord's case is of great interest for the following reasons: (1) the presence of calculi in both kidneys; (2) the size of the calculus, 3¼ inches by 2 inches by 2 inches; (3) the comparatively small amount of discomfort and pain, considering the size and irregularity of the stone; (4) the extremely healthy appearance of both the kidneys at the operations; (5) the separation of the calculus into two large fragments and one small one, articulating by facets, and in a way resembling a knee joint with patella. The joint was movable in a front to back direction, and was evidently flexed whenever the patient bent her back. This capacity for flexion doubtless prevented much of the pain.

12. **Removal of Sebaceous Cysts.**—In the method employed by Freeth an incision is made, not over the cyst, but through the healthy skin alongside it, parallel to and the same length as the shortest diameter of the cyst. The hypodermic injection of a little cucain solution along the line of the incision is all the anesthetic required. A small blunt hook is then inserted into the incision and is worked round the cyst, tearing through the adhesions of the cyst wall, first on the superficial aspect, as that is where the cyst wall is thinnest and most liable to burst, and then on the deepest aspect, until the cyst is completely separated, when it can easily be delivered by pressure from above, much in the same way as a cataract is delivered. A dab of collodion on the wound is sufficient dressing. The advantages of this method are said to be:

1. The incision is through healthy skin and is, especially when the cyst is oblong, much shorter than by the usual method.
2. The union is quicker, more satisfactory, and the appearance of the resulting scar much better than that of an incision through the altered skin over the cyst.
3. A minimum amount of anesthetic is used, as only a linear injection is required.
4. In case of cysts situated on the scalp very much less hair need be cut, as all that is required is a single snip of the scissors over the site of the incision.

Australian Medical Journal, Melbourne

July

13 Quinsy. T. K. Hamilton.
14 *Causation of Infantile Paralysis. W. MacKenzie.
15 *Cervical-Rib. F. D. Bird and J. Smith.
16 Recent Advances in Obstetrics. G. Rothwell.
17 Recent Work in Treatment of Puerperal Sepsis. H. C. Lloyd.
18 Management of the Normal Puerperium. R. T. Sutherland.
19 Modern Methods in Private Obstetric Practice. R. H. Fetherston.
20 Dystocia: Early Recognition and Surgical Management. R. H. Morrison.
21 *Curative Effects of Radium on Cancer in Mice. H. Lawrence.
22 Case of Chorio-epithelioma of Uterus. W. E. Wilson.

14. **Causation of Infantile Paralysis.**—MacKenzie's paper may be summed up as the recognition of the treatment of the muscle as the all-essential in this disease. Instead of waiting for a chance recovery in the anterior cornua, and treating in a perfunctory way the muscles with massage and electricity, it recognizes the fact that every affected muscle will work, provided that a commencement be made from zero. It recognizes that an affected limb will retain its heat, and show little waste, provided that it be rested and worked within physiologic limitations, even without massage and electricity. Work must not be done for the muscle, it must work. Much patience is required; results are slow in arriving in many cases, but these will merit the time and trouble spent.

15. **Cervical-Rib.**—Bird and Smith review the clinical history of cervical-rib and report 5 cases.

21. **Radium.**—Lawrence advocates the use of large amounts of radium and increasing the length of time of application, the object being to obtain the selective action of the ultra-penetrating rays of the radium on the cancer cells. He records the results of his experiments with mice, which were extremely satisfactory.

Medical Press and Circular, London

August 19

23 Convulsions and Epilepsy in Early Life. L. Guthrie.
24 Treatment of Mental Excitement in Asylums. G. M. Robertson.
25 Varieties of Molluscum Contagiosum. P. S. Abraham.
26 Amputations. W. T. Thomas.
27 Chronic Intestinal Stasis. W. A. Lane.

August 17

28 Convulsions and Epilepsy in Early Life. L. Guthrie.
29 Printers' Palsy. J. C. McWalter.
30 Proposed Sterilization of Certain Degenerates. R. R. Rentoul.
31 Cholera Outbreak Among the Nurses of the Presidency General Hospital, Calcutta. C. R. Macrea.

Journal of Obstetrics and Gynecology of the British Empire, London

August

32 *B. Coli* Infection of Urinary Tract Complicating Pregnancy. E. N. Burnett.
33 The Pelvic Floor Aperture. R. H. Paramore.
34 The Inflammatory Pelvic Mass. W. W. Chipman.

Clinical Journal, London

August 19

35 *Non-Surgical Treatment of Ulcer of the Duodenum. G. Herschell.
36 Retention of Urine. H. Lett.
37 Pitfalls in Diagnosis of Common Diseases of the Eye. A. H. Thompson.

August 17

38 Arthritis Deformans. O. Grunbaum.
39 Small-Pox and Its Early History. F. M. Sandwith.
40 Localized Tuberculosis Treated with Tuberculin. C. Riviere.

35. **Non-Surgical Treatment of Ulcer of the Duodenum.**—Herschell is convinced that the chief reason for the want of success so frequently experienced by those attempting to cure a duodenal ulcer by medical means is the half-hearted manner in which the treatment is carried out and the neglect

to make use of the results of recent scientific work. When there is any marked interference to the passage of food along the duodenum, or immediate danger to life from hemorrhage, or perforation, actual or impending, surgical measures are urgently demanded. In their absence one may undertake the medical treatment of a duodenal ulcer with a distinct probability of success, if the patient will cooperate. First, Herschell would eliminate any condition which may possibly account for the deficiency of protecting bodies in the blood. Next, he would remedy the deficiency of antitryptic and antilytic substances in the blood, and reduce the acidity and peptic power of the gastric juice. Then he secures the stomach against distention. One of the chief ways in which a gastroenterostomy conduces to the healing of a duodenal ulcer is by perventing distention of the stomach. One can secure much the same result—(a) by preventing the pyloric spasm by the administration of atropin and alkalies; (b) by giving the food in small amounts at comparatively short intervals; (c) by giving the drink, which should be hot water, not with the meals, but when the stomach is empty. It will then pass quickly out of the stomach, and will incidentally wash and cleanse the surface of the ulcer in the duodenum. Lastly, treat any adhesions.

In order to prevent relapses it is necessary for the patient to observe the following rules for a considerable time after his cure:

1. A proper belt to support the lower abdomen should be constantly worn.
2. A daily dose of olive oil should be taken, fasting every morning, provided that it agrees.
3. A daily dose of normal horse serum should be taken after the principal meal for a month, and then twice a week for another month. In the spring and autumn a dose of serum should be taken twice a week for a month as a prophylactic.
4. All vegetables should be put through a sieve.
5. Preference should be given to white meats, and to boiling or steaming instead of roasting or baking. All made dishes, curry, condiments, pickles and vinegar should be permanently excluded from the diet.
6. The blood should be examined periodically for hemoglobin and steps taken to keep it up to a normal standard.
7. If there has been any melena or occult blood the patient's stools should be examined periodically after a three-days' hemoglobin-free diet.

Dublin Journal of Medical Science

August

41 Pathologic Report of the Rotunda Hospital for the Year Ending Oct. 31, 1909. R. J. Rowlette.
42 Dysentery or Dysenteric Diarrhea in West African Prisons. S. G. Gray.
43 *Temperature Curve in Pulmonary Tuberculosis. M. S. Baker.
44 Why Has Small-Pox Declined in Prevalence and Fatality? J. Moore.

43. Temperature Curve in Pulmonary Tuberculosis.—Despite the fact that the temperature range has no fixed relation to the morbid changes in the lungs, Baker believes that no other clinical feature offers so reliable a criterion on which to form conclusions as to the patient's future. It is usual to regard the absence of fever as a hopeful sign, although occasionally it will be found that rapidly-advancing cases remain apyrexial throughout. The significance of a subnormal temperature range may best be considered in relation to the circulatory condition present. So long as the pulse remains good, a subnormal oral temperature is not a serious import, but when present in conjunction with a rapid pulse and low intra-arterial pressure it may be regarded as a serious sign. In uncomplicated cases the presence of fever is conclusive evidence of the activity of the disease, and if persistent must influence the prognosis unfavorably. Continuous and remittent fevers are often present in rapidly-advancing cases, and indicate more certainly than any other sign a progressing disease. An intermittent fever of the hectic type is so frequently associated with cavitation that its presence must necessarily darken the outlook, while an intermittent temperature curve whose amplitude of variation is less marked, yields more readily to treatment than continuous or remittent fever. Many observers regard an inverse fever with anxiety, and the sudden appearance of a high inverse range in afebrile cases is specially significant, being often associated with the onset of a miliary infection.

The behavior of the temperature curve under the influence of open-air treatment and rest is a valuable prognostic guide. Cases which exhibit a rapidly subsiding temperature range under treatment are especially hopeful, while those which show a persistent fever aand impaired nutrition under like circumstances hold out little hope of recovery; so long, however, as the nutrition remains good there may eventually occur a subsidence of fever. In charts which show an irregular range where periods of pyrexia occur at intervals a lengthening of the apyrexial periods is to be looked for in favorable cases. A fever suddenly appearing on the second to the fourth day after an hemoptysis, accompanied by dyspnea and cyanosis, and persisting without remission, may always be regarded with the gravest apprehension as indicating the onset of an aspiration-pneumonia, a complication which almost invariably proves fatal.

Annales de l'Institut Pasteur, Paris

July, XXIV, No. 7, pp. 529-608

45 Disease of Silk-Worm Moths. (Le rouge du papillon du ver à soie en Cochinchine.) C. Broquet.
46 Theory and Practice of Cheese Making. (Technique fromagère.) P. Mazé. Concluded.
47 Fowl Diphtheria. (Le microbe de la diphthérie des poules.) J. Bordet and Y. Fally.
48 Migration of Alkaloids in Grafts. (Migration des alcaloides dans les greffes de Solanées sur Solanées.) M. Javillier.
49 Proteolysis in Anthrax Cultures. (Protéolyse de la bactéridie charbonneuse.) E. Lazarus.
50 Microbes that Produce Phenol. K. Dobrwotski.

Annales de Médecine et Chirurgie Infantiles, Paris

August 1, XIV, No. 15, pp. 465-492

51 *Diphtheritic Cardiopulmonary Paralysis. Matel.
52 *Ichthyosis and the Thyroid. J. Roux and J. Galippe.
53 Treatment of Severe Forms of Atrophy and Hypotrophy in Infants by Feeding with Milk Heated to 108 C. G. Variot.

51. Diphtheritic Paralysis.—The paralysis in the case reported came on about the fifteenth day of mild diphtheria notwithstanding that 70 c.c. of antitoxin had been given in 3 days. The paralysis was evidently the work of endotoxins and further injections of antitoxin were consequently of no avail. The paralysis involved the larynx, heart and lungs but the child, a boy of 10, was finally tided past the danger stage under symptomatic measures and the cure was complete by the end of the third month. He was kept sitting up in bed to prevent suffocation and 2 or 3 mg. of strychnin sulphate was injected daily subcutaneously for 15 days and then changed for another form of strychnin.

52. Ichthyosis and Thyroid Treatment.—Three months of thyroid treatment proved absolutely ineffectual in the 2 typical cases of ichthyosis reported.

Annales des Maladies des Org. Génito-urinaires, Paris

July 15, XXVIII, No. 14, pp. 1249-1344

54 Urinary Disturbances after Various Earthquakes in Italy since 1904. (Les troubles urinaires chez les survivants de la catastrophe Calabro-Sicilienne.) C. Bruni.
55 Cysto-Urethroscope. L. Buerger (New York).
56 Cystitis from Passage of Long Silk Threads into the Bladder 2 Years after Hysterectomy. Successful Removal of ½-yard piece of Silk under Cystoscopy. Le Fur.
57 *Clamping and Ligating the Hilus of the Kidney Instead of the Pedicle in Nephrectomy. (Sur la forcipressure appliquée méthodiquement dans la néphrectomie). S. d'Este.

57. Clamping and Ligating the Kidney Hilus Instead of the Pedicle in Nephrectomy.—D'Este reports Tansini's successful technic for nephrectomy when there is sclerosis of the hilus and vessels. He applies a clamp to the hilus, including the large vessels and the ureter, and ligates here. Among his 47 operations of the kind he lost only 1 patient and this in 1875, his mortality thus being only 2.12 per cent. This technic also materially shortens the operation.

Archives de Médecine des Enfants, Paris

August, XIII, No. 8, pp. 561-640

58 *Diabetes in Children. (Diabète sucré chez l'enfant.) M. Lauritzen.
59 *Characteristic Crying of Infants with Inherited Syphilis. (Les cris chez les nourrissons hérédo-syphilitiques.) G. Sisto.

58. Diabetes in Children.—A similar article by Lauritzen was summarized in THE JOURNAL, August 27, page 813.

59. Characteristic Crying of Infants with Inherited Syphilis.—Sisto remarks that infants cry from hunger or pain and that an inherited syphilitic taint may cause such pain, generally in the region of the epiphysis, that the children scream

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or moan incessantly. This constant crying day and night may be the only manifestation of the constitutional syphilis. Under antisyphilitic treatment the child soon ceases to cry. His statements are based on 8 cases described in detail from his own experience and 5 from Comby's. The children commenced to cry from the second to the fortieth day of life, screaming when they were moved and the crying generally being most severe at night. There was no known history of syphilis in some of the families but the children stopped crying at once under mercurial treatment. Radioscopy generally revealed an osteochondritic process.

Lyon Médical, Lyons

July 24, XLII, No. 30, pp. 161-190

60 *Two Cases of Chronic Retention of Urine without Mechanical Obstacle. Rochet and Müller.

July 31, No. 31, pp. 193-218

61 Cancer of the Thyroid with Exophthalmic Goiter Symptoms. Postoperative Myxedema after Partial Thyroidectomy. X. Delore and H. Alamartine.

60. **Retention of Urine Without Mechanical Obstacle.**—The authors report two cases in which cure was effected by stretching the upper urethra through a buttonhole opening in the perineum.

Presse Médicale, Paris

August 13, XVIII, No. 65, pp. 617-624

62 Study of Five Members of a Family with Inherited Syphilis. (Étude d'une famille d'hérédosyphilitiques.) A. Barré and P. Gastinel.

Revue de Chirurgie, Paris

August, XXX, No. 8, pp. 241-464

63 Jaundice with Echinococcus Disease of the Liver. (De l'ictère dans les kystes hydatiques du foie.) E. Quénu.
64 Traumatic Dislocation of the Scaphoid on the Tarsus. (Luxations traumatiques du scaphoïde tarsien, en particulier luxations doubles.) A. Boeckel.
65 *Stricture of the Lower Intestines from Inflammation Outside, especially in Women. (Rétrécissements péri-coliques pelviens; péri-recto-sigmoïdiens.) G. Küss. Commenced in No. 2.
66 *Treatment of Arterial Aneurisms. C. Monod and J. Vanverts. Commenced in No. 5.

65. **Stenosis of the Colon from Inflammation Outside.**—Küss concludes his long study of what he calls pelvic pericolic stenosis by giving the history in detail of 50 cases, including a number previously unpublished. The inflammation may have originated in the peritoneum, adnexa, or rectum. The strictures in question are characterized by the fact that the mucosa seems to be intact and slides on the subjacent tissues and on the abdominal wall, the latter seeming to form a solid part of the fibrous perirectal mass. The findings suggest cancer except for a history of pain and acute attacks suggesting inflammation in the left half of the abdomen. Hysterectomy, breaking up adhesions, or other suitable intervention is followed as a rule by a complete functional cure; medical measures alone are ineffectual.

66. **Treatment of Arterial Aneurisms.**—Monod and Vanverts discuss the aneurisms of the various arteries in turn, classifying them thus under 19 heads and reviewing the experiences recorded in the literature with each type, especially the ultimate outcome after the different methods of treatment followed in each.

Semaine Médicale, Paris

August 17, XXX, No. 33, pp. 385-396

67 Industrial Diseases and Industrial Insurance. (Essai sur les maladies professionelles.) V. Thébault.

Archiv für Gynaekologie, Berlin

XCI, No. 2, pp. 243-578. Last indexed Aug. 6, p. 539

68 Tumors in Pelvis Interfering with Delivery. (Geburtsstörungen durch Beckentumoren.) K. Stern.
69 Retrogression of Corpus Luteum. J. W. Miller.
70 Deliveries with Contracted Pelvis. (Ueber Geburten bei engem Becken.) M. Yamasaki.
71 *Further Experiences with Bossi's Dilator. H. Hofmann.
72 *Conclusions From 85 Pubiotomies. (Ueber die Bewerthung der Hebosteotomie auf Grund von 85 Operationen.) E. Roth.
73 *Comparative Study of Cesarean Section, Pubiotomy and Extraperitoneal Cesarean Section. (Welche Stellung nimmt die klassische Sectio caesarea zur Hebosteotomie und zum extraperitonealen Kaiserschnitt ein?) G. Leopold.
74 *Treatment of Eclampsia according to Stroganoff. E. Roth.
75 Cervical Cesarean Section. (Zur Kritik des cervikalen Kaiserschnittes.) Richter.

71. **Instrumental Dilatation of the Cervix.**—At the clinic in charge of Leopold, Bossi's dilator is considered the best instrument for this purpose and it has been used there to start premature spontaneous delivery in 52 cases and in 123 cases as a preliminary to immediate artificial delivery. The indications were mostly eclampsia, nephritis, heart disease, advanced pulmonary tuberculosis or hydramnion. There was no laceration of the cervix in 60 cases, and only such slight injury that there was no bleeding in 35 other cases; tears important enough to require suturing occurred in 28 cases, but the puerperium was febrile in only 8 of these and the fever was briefly transient in all. The dilator must be spread only between the uterine contractions and the instrument should not be used for pluriparæ with cicatricial lesions in the cervix, although this was done in several cases in Leopold's clinic without harm. Another important point is to carry the dilatation far enough.

72. **Indications for Pubiotomy.**—This communication from the Dresden clinic for women, in charge of Leopold, reports the details of 85 cases in which pubiotomy was done. The puerperium was febrile in 48 of the cases and in 20 the condition was serious. Six of the children died possibly in consequence of the operation but none of the mothers. In 10 of the 40 cases in which the women were examined later there were complaints of pain on long standing or walking or lifting. In 21 of the 38 women examined there was a tendency to prolapse of the vagina or uterus or both. In only 6 of the 20 cases in which the women passed through another pregnancy after the pubiotomy was the pelvis found permanently enlarged. The conclusions from the experiences related are that pubiotomy must be restricted to multiparæ, to the aseptic cases and to those free from general disease. Pelves with a true conjugate under 7 cm. should also be excluded from pubiotomy as also all cases in which there is much disproportion between the size of the pelvis and the fetal head.

73. **Cesarean Section.**—Leopold reports 300 vaginal Cesarean sections and compares the lessons learned from these and other obstetric operations, his final conclusions being that the classic Cesarean section still retains its preeminence, and that every woman with a much contracted pelvis should be sent to an institution at least two weeks before term so that she can be prepared for any necessary operation, infection warded off, and the most propitious operative technic selected.

74. **Treatment of Eclampsia According to Stroganoff's "Prophylactic" Method.**—Roth reports 31 cases of eclampsia in which Stroganoff's method of treatment was applied. (It was described in THE JOURNAL, July 3, 1909, page 86.) Roth expresses surprise that this technic is not more generally followed as he considers it remarkably effectual and peculiarly adapted for general practice. It must be instituted in time, however; even minutes count in eclampsia. Stroganoff, Roth says, has certainly obtained better results in eclampsia than any other clinician can boast, and the outcome at Leopold's clinic was also unexpectedly favorable as the method had been applied with considerable skepticism. Good results may be anticipated when the physician who first sees the patient begins treatment according to Stroganoff's method and then sends the patient to an institution where it can be continued with expert skill. If general practitioners and the clinics could thus work together, he declares, the treatment of eclampsia would enter on a most promising phase. Others have treated women in eclampsia with morphin and chloral but they gave them only during the convulsions, while Stroganoff keeps the woman constantly under the influence of small doses of the drugs and thus wards off any further attacks. No external influence, noise or light, is allowed to disturb the drowsiness induced by the sedatives. If the woman has to be touched, it is done under 20 drops of chloroform. His plan is to give 0.015 gm. (¼ grain) morphin at once; in 1 hour 2 gm. (30 grains) chloral; at the third hour, repeat the dose of morphin; at the seventh hour, repeat the dose of chloral; at the thirteenth hour, 1.5 gm. (23 grains) chloral and repeat

this dose at the twenty-first hour. He gives the chloral in a solution of 20 parts chloral hydrate, 20 parts mucilage of acacia and 180 parts distilled water. Only 1 of the 31 women died and autopsy revealed signs of pneumonia in this case, possibly responsible for the fatal outcome.

Beiträge zur Klinik der Tuberkulose, Würzburg

XVII, No. 1, pp. 1-149. Last indexed Aug. 13, p. 630

76 Experimental Research in Tuberculous Infection. O. Grüner and F. Hamburger.
77 Histologic Research on the First Changes after Tuberculous Infection. H. F. Helmholz and T. Toyofuku.
78 Occurrence of Tubercle Bacilli in the Tissues and Changes in their Property of Being Acid-Fast. (Beitrag zum Vorkommen des Tuberkelbazillus im Gewebe, sowie zur Aenderung seiner Säurefestigkeit.) P. Geipel.
79 Various Aspects of and Experiences with Tuberculin Treatment of Tuberculosis. (Beiträge zur spezifischen Behandlung der Tuberkulose auf Grund klinischer Beobachtungen.) W. Neumann.

Beiträge zur klinischen Chirurgie, Tübingen

July, LXVIII, No. 3, pp. 605-827

80 Sarcomatous Carcinomas and Carcinomatous Sarcomas. (Ueber Mutationsgeschwülste und ihre Stellung im onkologischen System.) H. Coenen.
81 Tardy Meningitis after Apparent Recovery from Fracture of the Skull. E. Lonhard.
82 *Appendicostomy. H. v. Salis.
83 Infections with Anaerobic Bacteria. (Zur Kenntnis anaërober Staphylokokken und des Bacillus fundiliformis.) M. Heyde.
84 *Transplantation of Dead Bone. (Ueber Knochenersatz.) W. Kausch.
85 Contact Cancers. (Zur Frage der Abklatschcarcinome.) A. Caan.
86 Hemostasis by Twisting in the Vessel Walls. (Ueber die Verwendbarkeit der Blunk'schen Blutgefässklemme zur definitiven Blutstillung.) H. Petzsche.
87 Lessons from 225 Cases of Fracture of the Skull. (Bericht über 225 Schädelfrakturen 1897-1907 mit Nachuntersuchungen.) L. Frank.
88 Resection of Half of Pelvis. (Ueber Resektion einer Beckenhälfte und Exarticulatio interilio-abdominalis.) D. Kulenkampff.
89 Congenital Fistula in the Lower Lip. (Ueber die angeborenen Unterlippenfisteln.) A. Oberst.
90 The Spiral Incision in Treatment of Varicose Veins. (Zur Behandlung des varikösen Symptomenkomplexes mit dem Spiralenschnitt nach Rindfleisch-Friedel.) P. Kayser.
91 Local Tumor-Forming Fibrous Ostitis. G. E. Konjetzny.

82. **Appendicostomy.**—Salis reports 8 cases in which direct medication of the inflamed bowel through the appendix, brought out and sutured to the skin, proved the means of curing obstinate, simple or membranous colitis. Good results were obtained even in the purulent ulcerative form. The technic is so simple that he prefers it to an artificial anus, to resection of the bowel or ileosigmoidostomy, as it answers practically the same purpose while the operation is comparatively an insignificant one. The opening is not large enough, however, he states, in case of mechanical or peritonitic ileus.

84. **Implantation of Dead Bone.**—Kausch has implanted bone from the cadaver, ivory supports, and dead bone, reporting here 8 cases. The results show that cadaver bones and foreign substances are unsuitable material for implantation, but that bone taken recently from the human body but no longer living can be made to answer the purpose admirably. In one of his cases the tibia was resected, including the periosteum, on account of sarcoma, and a corresponding piece of the tibia from a leg amputated the day before on account of sudden trauma was implanted in its place. The periosteum was scraped off, the epiphyses sawed off, the bone marrow scooped out, and a piece 8 cm. (over 3 inches) was implanted in the patient's leg. It was held in place with a long ivory tube at each end, passed into the inner canal in the bone of the graft and stumps. Recurrence of the sarcoma compelled amputation of the leg 266 days later. The implanted bone had become covered with a new growth of periosteum and was being absorbed, its place being taken throughout by new bone tissue. The ivory had been absorbed also but there was no new regeneration of bone in its place.

Berliner klinische Wochenschrift

August 8, XLVII, No. 32, pp. 1485-1524

92 Importance of Ehrlich's "606" in Treatment of Syphilis. (Bedeutung des Ehrlich'schen Arsenobenzols für die Syphilisbehandlung.) A. Neisser and E. Kuznitsky.
93 *Relations Between Hypersusceptibility and Immunity. (Beziehungen zwischen Überempfindlichkeit und Immunität.) E. Friedberger.
94 Serology and Psychiatry. H. Much.
95 *Avoidance of Accidental Pseudopulmonary Sounds in Auscultating the Apices. (Ueber pseudopulmonale Geräusche und ihre Vermeidung bei der Auscultation der Lungenspitzen.) E. Allard.
96 Origin of Emphysema. (Zur Emphysemfrage. II.) L. Hofbauer.
97 The So-Called Trachoma Germ not Identical with the Gonococcus. (Entsteht der Trachomerreger durch Mutation des Gonococcus?) L. Halberstaedter.
98 Positive Findings with the Melostagmin Test in 30 out of 32 Cases of Cancer. (Zum Studium der Melostagminreaktion bei bösartigen Geschwülsten.) C. Stabilini.
99 Influence of Lipoids on Autolysis of the Liver. (Einfluss der Lipoide auf die Leberautolyse.) G. Satta and G. M. Fasiani.

93. **Relations Between Hypersensibility and Immunity.**—Friedberger is inclined to regard these as practically identical processes, differing only in degree.

95. **To Avoid Accidental Sounds in Ausculting.**—Allard distinguishes the sounds due to the muscles or scapula from those originating in the apex by having the patient change the position of arm and shoulder, the change in the sounds then revealing their extraneous nature. The accidental sounds can be excluded by having the patient extend his arm straight, rotate it inward in the shoulder joint and then move the arm backward until the shoulder joint is lowered. With this position there do not seem to be any accidental muscle or scapula sounds; he has noticed moreover that the breathing sounds become more prominent in this position.

Deutsche medizinische Wochenschrift, Berlin

August 11, XXXVI, No. 32, pp. 1523-1572

100 Morbid Dread. (Zur Symptomatologie und Therapie der Angst.) A. Cramer.
101 *Experiences with Ehrlich's "606" in Treatment of Syphilis. Beobachtungen an 500 mit Dioxy-diamido-Arsenobenzol behandelten Krankheitsfällen.) W. Wechselmann.
102 Glioma Removed from Third Left Frontal Convolution. (Operiertes Gliom der III. linken Stirnwindung.) Coler.
103 *Impossibility of the Hair Turning White Suddenly. (Ist plötzliches Ergrauen des Haupthaares möglich?) L. Stieda.
104 Endothelial Origin of Mononuclear Cells in the Blood. V. Patella.
105 *Origin and Treatment of Scoliosis. E. Hoffmann.

101. See abstract 10 in American Current Literature, this issue.

103. **Is It Possible for the Hair to Turn White in a Few Hours?**—Stieda answers this question in the negative, stating that extensive search on his part has failed to reveal an authentic case of this occurrence. The cases on record are all based on hearsay evidence or the phenomenon is to be attributed to the individual's not being able or forgetting to use the customary hair-dye. A patient of Behrend's suffered from headache and he advised the man to give up the use of his hair-dye, which was probably responsible for the headaches. The man did so and explained to his friends that the sudden change of his black locks to white was the result of business worries. Stieda also knows personally of a case in which a dark-haired man was taken to prison and when discharged after a few days his hair was white, but simply because he had not taken his hair-dye with him to prison.

105. **Origin and Treatment of Scoliosis.**—Hoffmann lays great stress on prevention of scoliosis, declaring that once established the treatment is tedious and not very encouraging. He ascribes the development of the curvature to the fact that the child loses the instinctive sense for the correct attitude of the body owing to strain on the muscles from certain attitudes at school work. When examined the child seems to be scoliotic when in reality it merely assumes a scoliotic attitude from disturbances in the sense of muscular balance. Sitting without a support for the back aids in fatiguing the muscles and to rest them the child stoops over or twists around or slides down in its seat. Girls' muscles do not get so much exercise as boys' and consequently these faulty attitudes are more common among them. When this scoliotic attitude once becomes habitual, the child is unable to stand up straight even when it tries to do so, and it has to be taught anew the sense of muscular balance in the spine. This can be done by training, the physician saying, "Chest out; draw in your abdomen; throw your head back; hold your right shoulder lower, etc.," aiding these

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commands at first with manual pressure, but later relying on the commands alone and shortening them, until when the child is told to stand erect it assumes automatically the proper position. It may be wise to teach a rather over-corrected attitude at first. This training of the muscles is supplemented with gymnastics to strengthen the back muscles, and he instructs the mothers to carry on the training under occasional supervision by the physician. The measures must be individualized to each case, he says, possibly including a slanting seat in school and higher sole on one side. Creeping exercises, etc., may be useful in advanced stages but he prefers exercises erect, as the aim is to teach the child to stand and sit straight.

Deutsche Zeitschrift für Chirurgie, Leipsic

July, CV, Nos. 5-6, pp. 445-614

106 Tardy Sequels of Appendicitis. (Spätfolgen der Epityphlitis.) O. Retzlaff.
107 Duodenal Ulcer. (Das Duodenalgeschwür und seine chirurgische Behandlung.) D. G. Zesas.
108 *Superheated Air in After-Treatment of Laparotomized Patients. (Heissluftbehandlung nach Laparotomien als peristaltikanregendes Mittel zugleich ein Beitrag zur Verhütung post-operativer Peritonitis.) A. Strempel.
109 Retrograde Incarceration. L. Stuckey.
110 *Rolling Up the End of the Severed Intestine. (Eine neue Methode des operativen Darmverschlusses.) R. Klapp.
111 Treatment of Syndactylia. R. Schreiber.
112 Gunshot Wounds of the Heart. (Herzschüsse.) H. Iselin.
113 Tardy Intestinal Hemorrhage after Operative Treatment of Incarcerated Hernia. (Die Spätdarmblutungen nach der Brucheinklemmungsoperation.) C. Canestro.
114 Hemorrhagic Glossitis in a Hemophiliac. E. Umbreit.

108. **Superheated Air in After-Treatment of Laparotomized Patients.**—Strempel is enthusiastic over the way in which peristalsis is stimulated after a laparotomy by applying heat to the abdomen, either in the form of the hot-air box or an incandescent electric-light box. He has used the latter exclusively as he happened to have a contrivance of the kind on hand. In his 141 cases flatus passed generally in from 18 to 24 hours, seldom as late as 48 hours. Another advantage of the method is that the patients are thoroughly warmed by it, counteracting the tendency to chilling during the operation. The temperature in his box can never get over 55 C. so that the box does not require very close supervision. He applies it for an hour and a half at a time, with intervals of 3 hours, and keeps this up night and day until all danger of intestinal paralysis is past. He has never witnessed any injurious effect on the heart and vessels although he has kept close watch for any tendency in this direction. No adjuvant measures were needed in any instance as the heat answered all purposes, except in a few cases a pint of water was injected to soften hard feces, or an intestinal tube was inserted to promote passage of flatus when the patients were too weak to strain. The only possible mishap from this method of after-treatment is that very restless patients on arousing from the effects of their anesthetic are liable to scorch the skin against the electric lights. The heat not only stimulates peristalsis but seems to promote absorption and prevent formation of adhesions while it seems to attenuate the virulence of bacteria in the region.

110. **Closing the Stump of the Severed Intestine by Rolling it Over.**—The long narrow forceps with which the stump of the intestine is clamped are rolled up on the intestine for two or three turns. The last turn is sutured to the body of the intestine and the forceps are then withdrawn. The lumen is thus more effectually closed than by the ordinary technics, Klapp declares, while the procedure is simple and neat.

Fortschritte der Medizin, Leipsic

August 4, XXVIII, No. 32, pp. 961-992

115 Surgical Treatment of Heart Disease. (Die chirurgischen Behandlung der Herzkrankheiten.) G. Axhausen.
116 Present Status of the Cancer Question. (Heutiger Stand der Krebsfrage.) C. Da Fano. Commenced in No. 30.

Jahrbuch für Kinderheilkunde, Berlin

August, LXXII, No. 2, pp. 121-242

117 Determination of Amount of Energy Required in the Food of Infants. (Zur Lehre von der energetischen Bestimmung des Nahrungsbedarfes beim Säugling.) O. and W. Heubner.
118 *Hypothyroidism in Children. (Hypothyreoidie im Kindesalter.) W. Stoeltzner.
119 *Calcium and Spasmophilia. J. Rosenstern.
120 *Pylorus Intubation for Spasmodic Stenosis of the Pylorus in Infants. (Ueber den hyperkompierenden Pyloruskrampf des Säuglings.) Berend and E. Winternitz.
121 Suppuration in the Salivary Glands in 3 Infants. (Ueber eitrige Speicheldrüsenentzündung bei Säuglingen.) P. Auerbach.

118. **Hypothyroidism in Children.**—Stoeltzner remarks that myxedema is not often correctly diagnosed; the children are generally treated for years on the mistaken assumption of rachitis. As a prospect of a cure grows less and less with the duration of the myxedema, this failure to recognize it early may have disastrous consequences. The rudimentary forms are particularly liable to escape recognition, while thyroid treatment in time is almost a certain cure. In a case of this kind, a boy of 6 had not grown in the last 2 years but seemed otherwise normal, although not particularly bright. Under cautious thyroid treatment by the end of 18 months he had grown 11 cm., nearly 4½ inches. In 2 other cases the myxedema developed after severe measles or mumps, with acute thyroiditis in the latter case. The thyroid treatment ordered was soon abandoned by the family and the child developed pronounced myxedema, but after 2 years it spontaneously subsided. In a fourth case the myxedema developed after a severe fall over a balustrade, the throat in front bleeding from the injury. The hypothyroidism in this case was evidently of traumatic origin, the first case of the kind on record, he believes. In this case also thyroid treatment promptly cured the child. In conclusion Stoeltzner suggests that the "pasty" children, fat, pale and flabby, may be suffering from hypothyroidism and require thyroid treatment. Overfeeding of children with this tendency to hypothyroidism seems to entail lymphatic enlargement.

119. **Lime and a Tendency to Convulsions.**—Rosenstern is convinced that the research to date has established the fact that the calcium ions are highly important for the regulation of the phenomena of movements and of nerve stimulation. His own experience confirms the assumption that a deficient proportion of lime in the food may entail nervous over-excitability, while he found that the excitability was materially reduced in 15 out of 20 infants with pronounced spasmophilia after ingestion of 100 c.c. of a 3 per cent. solution of calcium chlorid ($CaCl_2$). The cathode opening contraction, the facialis phenomenon and Trousseau's sign all showed the marked influence of the single dose of lime; a solution of sodium chlorid, on the other hand, seemed to have a contrary action. No injurious by-effects were observed from the single dose of lime, and Rosenstern thinks that his experience deserves attention as a means of treating an acute attack of threatening convulsions in a child. The infants to whom he gave the lime were all between 4 and 12 months old and most were inclined to dyspeptic disturbances besides the spasmophilic tendency.

120. **Stenosis of the Pylorus in Infants.**—Berend writes from Budapest to describe his experience with spastic stenosis of the pylorus in his own 2 children. The cases were distinguished further by the intensity of the syndrome. In his first child the weight dropped from 3,050 gm. at birth to 1,800 in less than 3 weeks, and operative treatment became necessary. Loreta's divulsion was done; the hard contracted pylorus relaxed in the surgeon's hand during the operation but it was still unusually thick although there was no trace of organic stenosis. The explosive vomiting continued as severe as before, the divulsion having evidently done no good, and the child growing constantly worse, the pylorus was incised and a Nélaton catheter, No. 7, French, was introduced through the mouth and passed through the pylorus into the duodenum. By this means it proved possible to feed the infant and recovery soon followed, all trouble being over by the time the child was 6 weeks old; it is now 3½ years old and perfectly healthy. The disturbances in his second child were not so severe; the pylorus was never palpable and the syndrome disappeared under medical measures alone. The first symptoms in both cases were the uneasiness in nursing so that the children were unable to empty the breast, and the protruding stomach, this protrusion of the stomach region and difficulty in nursing sustaining the assumption that

the spasm of the pylorus is the primary disturbance. Peristalsis in the stomach was noticed 4 days later and the tumor, the size of a hazel-nut, in the pylorus region by the end of the week. He recognized the true trouble from the start and kept a detailed record of all the data, especially the amount of fluid ingested and vomited each day. Nothwithstanding the severe derangement from the pylorospasm, the organism tenaciously maintained its normal water balance. He is inclined to ascribe the whole trouble to a lack of balance between the musculature of the antrum and the musculature of the fundus of the stomach; when the innervation of both becomes normal then all disturbances from this source cease. At birth there is neither spasmodic contraction nor hypertrophy of the pylorus, merely the predisposition. Winternitz discusses the cases from the surgical standpoint, calling attention to the extreme retraction of the muscular pyloric ring after the lengthwise incision, indicating excessive tonicity in the muscle. The pylorus was incised over the tube introduced from the mouth; this allowed ample nourishment from the first and the child began to gain at once. The retention pylorus catheter has proved successful in other cases in his hands, but he warns that it should not be left *in situ* longer than 2 days.

Medizinische Klinik, Berlin

August 14, VI, No. 33, pp. 1285-1322

122 Tuberculous Disease of the Eye. (Ueber tuberkulöse Erkrankungen am Auge.) C. Hess.
123 *Experiences with Ehrlich's "606" in Treatment of Syphilis. (Behandlung der Syphilis mit dem neuen Ehrlich-Hataschen Arsenpräparat.) E. Hoffmann.
124 Action of Carbonated Baths on Heart and Vessels. (Die Herz- und Gefässwirkung alter und neuer natürlicher CO_2-Bäder.) B. Fellner, Jr.
125 Certain Digestive and Nutritional Disturbances in Pulmonary Tuberculosis. (Ueber einige Störungen der Verdauung und Ernährung bei Brustkranken.) J. Cecikas.
126 Ischl Mineral Muds in Therapeutics. (Ueber Ischler Salzbergschwefelschlamm und dessen Verwendung.) A. Ott.
127 Modification of Wassermann Reaction Technic. K. F. Hoffmann.

123. **Ehrlich's "606" in Treatment of Syphilis.**—Hoffmann states that recurrences have been observed in large numbers of cases of syphilis after treatment with "606" in the customary dosage, and that by-effects have accompanied the use of the remedy to such an extent as to invalidate the claim made for the "606" that it is entirely harmless. In his experience with it by-effects were noticed only when the drug was in an acid solution, while they were absent when a neutral solution was used. The remedy does not certainly kill all the spirochetes as claimed, he says, as he was able in one case to demonstrate the presence of lively spirochetes in lesions on the genitals and tonsils a week after the injection of "606." In the case of a boy of 15 with syphilitic ozena from inherited taint, the improvement at once under the "606" was remarkable. In a case of ulcerated gummas in the mouth, throat and testicles of a man of 40, high fever, pulse of 140 and dyspnea followed the injection of the "606," other signs indicating central pneumonia of embolic origin and secondary pleurisy with extreme weakness of the heart. He ascribes this syndrome to dislodgement of a thrombus in the gluteal muscle following injection of a very acid solution; nothing about the syndrome suggested local infection of the site of the injection. In 2 other cases there was considerable disturbance of the heart action, the pulse running up to 120 and 160, the area of dulness spreading toward the right with accentuation of the second sound. These findings persisted for a few days and then gradually subsided. In another case there was a slight albuminuria. No visual disturbances were ever observed. He knows of a case in a Bonn institution in which the patient died suddenly the night after the injection. Ehrlich adds the details of this last fatal case as he has obtained them by telegraph. The patient, he says, was a woman of 33 with syphilitic apoplexy, paresis of the legs, tachycardia, difficulty in swallowing and accelerated breathing. The conditions in this case should have forbidden the use of the "606," he declares, as he has expressly rejected all responsibility when the remedy is given to other than those healthy except for the syphilis, and the organs sound. He also excludes the metasyphilitic diseases from treatment with "606." He reaffirms that given in the right way and with proper indications the remedy is free from dangers and does not induce any appreciable by-effects. Ehrlich has the records now of over 3,000 cases.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

August, XXXII, No. 2, pp. 125-240

128 Determination of Hemolytic Substances in the Placenta. E. v. Graff.
129 No Direct Connection Between Gynecologic and Gastric Disturbances. (Ueber das wechselseitige Verhältnis der weiblichen Geschlechtsorgane und der Erkrankungen des Magens.) O. Vertes.
130 Polydactylia. F. Heimann.
131 Multiple Laceration of Vaginal Vault During Delivery. (Ueber mehrmalige Zerreissungen des Scheidengewölbes während der Geburt.) M. Kaufmann.
132 Operative Treatment of Myoma. K. Franz.
133 *Operability of Recurrences After Removal of Uterine Carcinomas. O. Hoehne.
134 Groove Formation on the Surface of the Ovary. (Ueber Furchenbildung an der Oberfläche des menschlichen Ovariums.) G. Bien.
135 Retrogression of Ovarian Tumors after Vesicular Mole. (Rückbildung von Ovarialtumoren nach Blasenmole.) L. Fränkel.

133. **Operability of Recurrence After Removal of Uterine Cancer.**—Hoehne makes a point of keeping patients under supervision after he has operated on them for uterine cancer. He tells them to return to be examined at certain intervals and keeps a record of the dates, sending them a notice if they fail to present themselves as ordered; nothing should be allowed to interfere with this systematic reexamination. In 2 cases he was able by this means to discover recurrence in an early stage and successfully remove it, before the patients had the least suspicion that anything was wrong with them again, their general health being excellent. The after-examinations are always made with the greatest care and on discovery of the slightest suspicious lump the patient is taken into the hospital for 2 weeks' control. If the lump grows any larger during this time it is assumed to be malignant and is removed, but if it does not grow or subsides, the patient is dismissed and systematically reexamined at intervals. Prophylaxis of recurrences in this way is much more promising, he remarks, than the efforts to have primary cancer diagnosed earlier. The surgeon can thus root out recurrences on their first appearance. He describes a case in which what was supposed to be a nodular recurrence, not discovered until quite large, proved to be merely thick indurated cicatricial changes in the tissues. In another case what seemed to be merely an inflammatory infiltration proved to be a malignant recurrence extending diffusely through the region. Another case demonstrates the danger of thrombosis of the iliac veins following carcinomatous involvement of the vessel wall. It might be possible in such cases, he suggests, to prevent trouble from this source by ligating the main iliac vein before resecting the cancerous glands encroaching on the vein.

Münchener medizinische Wochenschrift

August 9, LVII, No. 32, pp. 1673-1720

136 Intoxication from Decaying Pancreas Tissue. (Zur Theorie der Pankreasvergiftung.) G. v. Bergmann and N. Guleke.
137 *Artificial Premature Delivery and Vaginal Cesarean Section with Habitual Fetal Mortality. (Künstliche Frühgeburt und vaginaler Kaiserschnitt bei Habituellem Absterben der Frucht.) A. v. Franqué.
138 *Treatment of Sciatica with Epidural Injections. L. Blum.
139 Relations of Lymphocytes to Splitting of Fat and Destruction of Bacteria. (Beziehungen der Lymphocyten zur Fettspaltung und Bakteriolyse.) S. Bergel.
140 The Meiostagmin Reaction in Typhoid. L. Vigano.
141 The Meiostagmin Reaction in Experimental Tuberculosis and in Differentiation of Human and Bovine Tubercle Bacilli Cultures and Infection. A. Gasbarrini.
142 Reconstructed Portrait of Prehistoric Man. (Die bildliche Darstellung des Urmenschen und ihr wissenschaftlicher Wert.) F. B. Solger.
143 Rhachiotomy in Treatment of Transverse Presentation. (Behandlung der verschleppten Querlage mittelst der Rhachiotomie Küstner.) H. Küster.
144 Tetanus of Obscure Origin. (Zur Lehre vom kryptogenetischen Tetanus.) F. Stromeyer.
145 *Nephritis Secondary to Exophthalmic Goiter. (Nierenerkrankung bei Basedowscher Krankheit—Thyreogene Nephritis.) M. B. Graupner.

137. **Prophylaxis of Habitual Death of the Fetus.**—Anomalies or disease of the placenta or changes resulting from the influence of chronic nephritis or nutritional disturbances in the endometrium may be responsible for the death of the

fetus in repeated pregnancies. In a case reported by von Franqué there were numerous patches of fibrous degeneration in the placenta; the patient was a woman of 38 with chronic nephritis and the fetus had died just before term in 3 previous pregnancies. She was kept under constant supervision during the 2 weeks before term and after a week the fetal heart sounds were found to be growing weaker, so he punctured the membranes and followed this in less than an hour with vaginal Cesarean section. The child was of normal size but weighed only 2,850 gm., evidently having suffered from insufficient nourishment, but has since developed normally. In another case, he delivered with the inflatable bag under much the same conditions. The pathologic findings in the placenta were not so pronounced in this case, but there was evidently a reaction to some irritating process. He declares that artificial premature delivery just before term as indications arise in these cases of habitual fetal mortality is a thoroughly scientific procedure, most gratifying in its outcome.

138. **Treatment of Sciatica with Epidural Injections.**—Blum applied the perineural technic, that is, injection around the nerve of an anesthetic or saline solution, in 25 cases of sciatica and the results were generally good. In 3 cases, however, no effect was obtained, and he has since used Cathelin's epidural technic and found it even more satisfactory. It was described at length in THE JOURNAL, July 13, 1901, page 150. The fluid is injected into the spinal canal through the lower median sacral foramen, the needle having to pierce only the sacrococcygeal ligament. The ligament once pierced, the needle is turned to point toward the cauda equina above. After injection of from 5 to 10 c.c. of salt solution, improvement of the sciatica is evident at once, very rarely the delay is 24 hours after the injection. In a few persistent cases he had to repeat the injection 3 or 5 times at intervals of 2 or 3 days before a complete cure was realized. The effects were always at least as good and as permanent as with the perineural injections, while the epidural technic is not painful, he says, and has never induced fever or untoward by-effects in the thousands of cases in which it has been used to date. This cannot be said of the perineural technic; he observed peroneus paresis in 2 cases after the perineural injections and others have reported similar experiences. Another advantage of the epidural technic is that it acts on other nerve tracts as well as on the sciatic; the single injection banishes pain in the sacrum and femoral nerve, while with the perineural technic each nerve has to be treated separately. The epidural injections have also been successfully applied to relieve the pain from compression of nerve roots by a cancer in the spine, to relieve the gastric and bladder crises in tabes and in lead colic and to cure nocturnal enuresis.

145. **Nephritis with Exophthalmic Goiter.**—Graupner relates a number of experiences and arguments which demonstrate that hyperplasia of near lymphatic organs is liable to develop in consequence of the progressive hyperthyroidism and thyroid intoxication, this hyperplasia being most evident in the thymus, lymph glands, in heteroplastic lymphomas in the thyroid itself or in the spleen and bone marrow. There may be a toxic nephritis characterized by necrosis of the epithelium; its development is favored by operative intervention on the thyroid as in the 2 cases reported in detail in which the patients succumbed in 18 and 26 hours after the operation. There was pronounced status lymphaticus in both cases and recent destructive nephritis.

Virchows Archiv, Berlin

August, CCI, No. 2, pp. 161-329

146 Kidney Tumors. (Untersuchungen über Nierengeschwülste.) M. Zehbe. Commenced in No. 1.
147 Cause of Specific Action of Mercury. (Die Grundwirkung des Quecksilbers.) G. Priebatsch.
148 Fatal Burns. (Beitrag zur Kasuistik der lokalen und allgemeinen Veränderungen beim Tode durch Verbrennung.) Raysky.
149 Microscopic Composition of the Exudate with Tuberculous Otitis Media. G. de Berardinis.
150 Regeneration after Tuberculous Intestinal Ulceration. (Regeneration des Darmepithels und der Lieberkühnschen Krypten an tuberkulösen Darmgeschwüren.) R. Amemoniya.
151 Regeneration after Superficial Duodenal Ulcers. (Die Regeneration des Darmepithels von den Brunnerschen Drüsen in oberflächlichen Duodenalgeschwüren.) H. J. Helmholz.
152 Local Amyloid of the Thyroid. (Lokales Amyloid der Schilddrüse.) E. Stoffel.
153 Inflammatory Tumors of the Salivary Glands. (Ueber die entzündlichen Tumoren der Speicheldrüsen.) H. Thaysen.
154 Multiple Subperitoneal Serous Cysts of the Uterus. B. Huguenin.
155 Intracellular Nerve Network in Tumor Cells. (Das Golgische Binnennetz in Geschwulstzellen.) E. Savagnone.
156 Malignant Suprarenal Tumor. (Zur Kenntnis bösartiger Nebennierengeschwülste.) F. Lasagna.
157 Hypophysis Tumor Without Acromegaly. M. Moskalew.
158 Sarcoma in Spinal Dura Mater. (Sarkom der Dura mater spinalis und dessen Dissemination im Meningealraum mit diffuser Pigmentation der Leptomeningen.) K. Kawashima.

Wiener klinische Wochenschrift, Vienna

August 11, XXIII, No. 32, pp. 1171-1202

159 Period of Incubation in Serum Sickness. (Ueber Inkubationszeit.) F. Hamburger and R. Pollak.
160 The Content of the Duodenum and Its Clinical Importance. (Der menschliche Duodenalinhalt mit statistischen Vergleichsbestimmungen zu seiner klinischen Beurteilung.) M. Gross, Oefele and M. Rosenberg (New York).
161 Tests of Pancreas Functioning. (Ueber die wichtigsten neuen Untersuchungsmethoden zur Prüfung der Pankreasfunktion.) L. R. v. Koreczynski.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXVI, No. 3, pp. 515-751. Last indexed August 6, p. 344

162 *Curative Action of Laparotomy for Tuberculous Peritonitis. F. Heimann.
163 The Local Tuberculin Reactions in Pregnancy and Puerperium. (Systematische Untersuchungen über die lokalen Tuberkulinreaktionen in der Schwangerschaft und im Wochenbett, und Schlussfolgerungen hinsichtlich der Diagnosen- und Prognosenstellung.) R. Stern.
164 Two Cases of Cesarean Section with Unusual Complications. A. Sitzenfrey.
165 *Racemose Vaginal Cancer in Children. (Zur Kenntnis der traubigen bösartigen Geschwülste der kindlichen Scheide.) C. Knoop.
166 The Full Bath a Source of Infection for Parturients. (Das Bad ist eine Infektionsquelle.) W. Hannes.
167 Pfannenstiel's Technic for Wedge Resection of the Uterus. (Die Pfannenstielsche Keilresektion des Uterus.) O. v. Franqué.

162. **Curative Action of Laparotomy in Peritoneal Tuberculosis.**—Heimann states that 36 women with tuberculous peritonitis have been laparotomized at Küstner's clinic in the 10 years ending in 1908. All were much improved or cured by the operation, and 15 have been recently reexamined. Fully 54 per cent. seem to be in perfect health at present, good testimony as to the curative value of a laparotomy in these cases. In 2 other cases Heimann had occasion to laparotomize women who had been operated on elsewhere years before for peritoneal tuberculosis, and he found that the tuberculous lesions had completely healed. The aspect was the same as that in guinea-pigs after complete recovery from experimental tuberculous peritonitis. The peritonitis in his cases was of the serous type and the laparotomy was made as soon as the trouble was diagnosed. Concomitant lung lesions seemed to be benefited by the operation at the same time as the peritoneal. The abdomen was merely opened and the ascites evacuated; no attempt was made to rinse out the abdominal cavity and the adnexa were left undisturbed, even when there was reason to suspect a tuberculous lesion in them. One of the women has passed through a normal pregnancy since. He lays great stress on his routine practice of systematic tuberculin treatment commenced the seventh day after the laparotomy, the course being kept up by the family physician after the patients leave the hospital.

165. **Vaginal Racemose Sarcoma in a Child.**—Knoop's little patient was a girl of 3 and the racemose sarcoma recurred in 6 months and again 3 months after the second operation, after which the child died. He reviews the similar cases on record, insisting that discovery of heterologous elements even in an apparently simple vaginal polyp in a child should compel removal of the entire genital apparatus by Wertheim's carcinoma technic, even in very young children. Malignant growths in the child vagina are of a different nature from those in adults and require still more energetic measures.

Zeitschrift für Urologie, Berlin

August, IV, No. 8, pp. 561-640

168 Case of Cystic Dilatation of an Accessory Ureter. S. P. von Fedorow.
169 Further Research on the Physiology and Pathology of the Prostate. J. P. Haberern and A. Makai.
170 Gonorrheal Infection and Genesis of Accessory Passages in the Penis. C. Gutmann.

Zentralblatt für Chirurgie, Leipsic

August 13, XXXVII, No. 33, pp. 1073-1112

171 *Treatment of Exstrophy of the Bladder by Making a Receptacle for the Urine out of the Lower Cecum, Utilizing the Appendix for the Urethra. (Zur Behandlung der Blasenektopie.) M. Makkas.

172 Technic for Laminectomy for Treatment of Spinal Cord Tumors. (Zur Technik der Laminektomie in der Behandlung von Rückenmarkstumoren.) Röpke.

171. **Treatment of Exstrophy of the Bladder.**—Makkas cut off the lower part of the cecum, making a closed bag of it, in which he implanted the ureters. He then drew the appendix out through the skin below to serve as an outlet for the urine accumulating from the ureters in the new reservoir formed by the cecum bag. The patient was a girl of 12 with typical exstrophy of the bladder and atresia of the vagina. The capacity of the new reservoir is over 300 c.c. and the child wears a retention catheter to date. The cecum was prepared for exclusion and implantation of the ureters by 10 days of sterilization. This technic avoids the great drawback of the Maydl technic, namely, mixture of feces with the urine, and thus all danger of ascending infection of the kidneys is obviated. With perfected technic, he adds, it may be possible to insure continence without the necessity for a retention catheter. The article is illustrated.

Zentralblatt für Gynäkologie, Leipsic

August 13, XXXIV, No. 33, pp. 1105-1128

173 Operations on the Uterus for Myoma and Disease in the Adnexa. K. M. Eisenstein.

174 *Recurring Extra-Uterine Pregnancy. (Wiederholte Extrauterin-Gravidität.) G. Siefart.

174. **Repeated Extra-Uterine Pregnancy.**—Siefart has had a second extra-uterine pregnancy occur in 1 out of his 25 cases during the last 10 years and a second case is suspicious. This percentage of recurring ectopic pregnancies and the similar small numbers encountered by others, render it unnecessary to take measures to prevent future pregnancies when operating for extra-uterine pregnancy, which some have advocated. In 3 of his 25 cases the women have passed through normal pregnancies and deliveries since the operation for the extra-uterine pregnancy.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 11, XXXI, No. 96, pp. 1009-1016

175 Inefficacy of Mercury in Surgical Tuberculosis. (Ancora della cura della tubercolosi chirurgica con i sali di mercurio.) E. Curti.

August 14, No. 97, pp. 1017-1032

176 Chondrectomy in Treatment of Pulmonary Emphysema. (Operazione del Freund in alcune forme di enfisema polmonare.) M. Fasano.

Riforma Medica, Naples

August 1, XXV, No. 31, pp. 841-868

177 *Pellagra. (Per la pellagra. Studio critico.) R. Campana.

178 *Transient Albuminuria a Favorable Sign after Laparotomy for Peritoneal Tuberculosis. (L'albumina transitoria nel periodo post-operativo dei laparotomizzati per peritonite tubercolare come segno di prognosi favorevole.) F. Gangitano.

August 8, No. 32, pp. 869-896

179 Favorable Experiences with Carbon Dioxid Snow in Treatment of Angiomas. (Applicazione e risultati del trattamento del Pusey all'acido carbonico degli angiomi.) U. Noferi.

180 *Experimental Research on Influence of Fatigue on the Processes of Infection and Immunity. (L'importanza dello strapazzo fisico nel meccanismo dei processi d'infezione e d'immunita.) D. de Sandro. Commenced in No. 31.

181 Operative Treatment of Ptosis of the Liver. (Contributo alla cura operativa delle ptatoptosi.) A. Cernezzi.

182 *Anesthesia of the Eyeball in Nervous and Mental Diseases. (L'anestesia del bulbo oculare nelle malattie nervose mentali) G. Vidone and S. Gatti.

179. **Pellagra.**—Campana protests against the assumption that there is only one single cause for pellagra.

178. **Laparotomy for Peritoneal Tuberculosis.**—Gangitano calls attention to the transient albuminuria which he noted in all the cases in which recovery followed the laparotomy, that is, in 7 out of the 12 cases of tuberculous peritonitis in which operative treatment was tried. In the 5 other cases the effusion returned, notwithstanding a second laparotomy in 2 cases. It seems evident that when the laparotomy modifies conditions to such an extent as to lead to a cure, albumin appears in the urine. The proportion was never large, amounting to 0.5 per thousand in only 2 of the cases. His patients were women and girls, between 14 and 49, and the tuberculous peritonitis was of from 4 months to 2 years' duration. He merely opened the abdomen and wiped the peritoneum dry with sponges, not flushing it, following the laparotomy with injections of iodin-iodid solution according to Durante's technic, and 7 of the 12 patients have completely recovered.

180. **Influence of Fatigue on Processes of Infection and Immunity.**—De Sandro reports extensive research on dogs, rabbits and guinea-pigs injected with typhoid toxins after severe muscular strain. Under the influence of the chemical changes induced by the physical strain, the nervous exhaustion, fatigue of the heart and disturbances in the blood production, the defensive powers were evidently much weakened; phagocytosis was reduced and also the chemotactic power of the cells, the bacteriolysins, antitoxins, agglutinins and opsonins showing a marked falling off.

182. **Anesthesia of the Eyeball in Nervous and Mental Disease.**—Vidoni and Gatti pressed the eyeball down on the floor of the orbit seeking for a sign of organic nervous disease and found, in fact, that the pain which this induces in normal conditions was absent in the 2 cases of tabes in their series of 88 patients with various nervous or mental affections. The anesthesia of the eyeball was also pronounced in 2 insane adults. The anesthesia is probably due to some lesion in the sympathetic nervous system, they say, adding that it may aid in the early differentiation of tabes.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

DIGEST OF COMMENTS ON THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA (EIGHTH DECENNIAL REVISION), AND THE NATIONAL FORMULARY (THIRD EDITION). For the Calendar Year Ending Dec. 31, 1907. By Murray Galt Motter and Martin I. Wilbert. Bull. 63, Hyg. Lab., U. S. P. H. and M.-H. S., June, 1910. Paper. Pp. 464. Washington: Government Printing Office, 1910.

HYDROTHERAPY. A Work on Hydrotherapy in General, Its Application to Special Affections, the Technic or Processes Employed and the Use of Waters Internally. By Guy Hinsdale, M.D., Secretary of the American Climatological Association. Cloth. Price, $3.50. Pp. 466, with 145 illustrations. Philadelphia: W. B. Saunders Co., 1910.

DISEASES OF THE COLON AND THEIR SURGICAL TREATMENT. (Founded on the Jacksonian Essay for 1909.) By P. Lockhart Mummery, F.R.C.S., Jacksonian Prizeman and late Hunterian Professor, Royal College of Surgeons. Cloth. Price, $3.25 net. Pp. 322, with 88 illustrations. New York: William Wood & Co., 1910.

PHYSICAL EXAMINATION AND DIAGNOSTIC ANATOMY. By Charles B. Slade, M.D., Chief of Clinic in General Medicine and Instructor in Physical Diagnosis in the University and Bellevue Hospital Medical College, New York. Cloth. Price, $1.25. Pp. 146, with 56 illustrations. Philadelphia: W. B. Saunders Co., 1910.

DAWN OF THE FOURTH ERA IN SURGERY AND OTHER SHORT ARTICLES PREVIOUSLY PUBLISHED. By Robert T. Morris, M.D., Professor of Surgery in the New York Post-Graduate Medical School and Hospital. Cloth. Price, $1.25. Pp. 145, with 6 illustrations. Philadelphia: W. B. Saunders Co., 1910.

LECTURES ON SURGICAL NURSING. By E. Stanmore Bishop F.R.C.S., Honorary Surgeon Ancoats Hospital, and Gynecological Surgeon, Jewish Memorial Hospital, Manchester. Cloth. Price, 81 net. Pp. 143, with 9 illustrations. New York: William Wood & Co., 1910.

AIDS TO MICROSCOPIC DIAGNOSIS (BACTERIAL AND PARASITIC DISEASES). By Ernest B. Knox, M.D., Diplomate in Public Health (Honors), Royal Colleges of Physicians and Surgeons, Ireland. Cloth. Price, $1 net. Pp. 156. New York: William Wood & Co., 1910.

DIFFICULT LABOR. A Guide to its Management for Students and Practitioners. By G. Ernest Herman, F.R.C.S., Consulting Obstetric Physician to the London Hospital. Cloth. Price, $2.50 net. Pp. 547, with 180 illustrations. New York: William Wood and Co., 1910.

PRACTICAL OBSTETRICS. By E. Hastings Tweedy, F.R.C.P.I., Master of the Rotunda Hospital, and G. T. Wrench, M.D., Late Assistant Master. Second Edition. Cloth. Price, $5.50. Pp. 491, with 159 illustrations. New York: Oxford University Press, 1910.

HISTORY OF MEDICINE. By Max Neuburger, Professor of Medical History in the Imperial University of Vienna. Translated by Ernest Playfair, M.B. In Two Volumes. Vol. I. Cloth. Price, $9. Pp. 404. New York: Oxford University Press, 1910.

PRACTICAL NURSING FOR MALE NURSES IN THE R. A. M. C. AND OTHER FORCES. By Major E. M. Hassard, R.A.M.C., and A. R. Hassard. Cloth. Price, $1.50. Pp. 334, with illustrations. New York: Oxford University Press, 1910.

FACTS AND PROBLEMS OF RABIES. By A. M. Stimson, Bull. 65, Hyg. Lab., U. S. P. H. and and M.-H. S., June, 1910. Paper. Pp. 90, with illustrations. Washington: Government Printing Office, 1910.